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Reciprocity Binds Newsprint on Free List

United States Trade Agreement With Canada Signed Friday at Washington and Ottawa Also Binds on Free List Wood Pulp and Pulpwood—In Return Canada Reduces Its Tariff on a Miscellaneous Variety of Papers Imported from the United States—Agreement To Be Effective Jan. 1, 1936 and To Remain in Force Until Dec. 31, 1938

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., November 18, 1935—In the Canadian trade agreement, effective January 1 next, announced late yesterday by the White House, the United States has bound the existing free entry into this country of pulpwood, wood pulp and newsprint paper.

The agreement recently made with Sweden bound on the free list certain major classes of wood pulp, of which Canada is also an important supplier, having furnished us such pulp to a value of $16,485,000 in 1929. Canada, of course, obtained the benefit of the obligation given Sweden. The Canadian trade agreement itself provides for binding on the free list the other classes of wood pulp. On the other hand Canada has reduced its rate on certain kinds of paper from the United States. Miscellaneous manufacturers of paper, the imports of which from the United States during 1929-1930 amounted to $3,100,000, secure a reduction in duty from 35 to 30 per cent ad valorem. The tariff item covering types of paper not elsewhere provided for, with a trade value of over $2,000,000 will pay 30 instead of 35 per cent. Concessions have also been assured on other specific types of paper.

Newsprint Most Important Item

Apart from those classes of wood pulp which were already bound on the free list by the trade agreement with Sweden (value $16,485,000 in 1929) the agreement with Canada binds the continued free entry of goods making up about $221,000,000. The biggest items bound on the free list are newsprint paper, wood pulp (mechanical, soda and bleached sulphite) and pulpwoods. Including wood pulp of the kinds already bound on the free list by the Swedish agreement, our imports of these three articles from Canada in 1929 were valued at not less than $184,000,000. The justification for assuring to Canada that these three commodities will continue to enter without duty during the life of the present agreement, says the government, lies chiefly in the fact that this country is at present unable to supply anything like its total requirements of paper and paper making materials, and the fact that in normal times the cut of wood from our forests for paper, lumber and all other purposes combined, greatly exceeds the annual growth, with resultant steady depletion of our timber stands.

For more than ten years past, says the government in its official announcement, the imports of paper materials and paper have been more than half of the total paper consumption in the United States. Any sudden and marked reduction in the imports of these commodities would greatly derange the paper manufacturing and paper using industries of the country. Adequate advance notice of any intention to change our long-standing policy regarding imports of these products should be given in the interests of American business. Moreover, any change in policy would scarcely be justified without assurance of a closer future balance between wood consumption and annual forest growth, involving a far-reaching program of reforestation and forest management. It may be noted further, the government says, that to levy a duty on one of these three major commodities, without also placing duties on the other two, would be unreasonable and unfair.

The United States has lowered the duty into this country of Canadian exports of pulpboard in rolls for wallboard, not processed from 10 per cent to 5 per cent. Also on pulpboard in rolls for wallboard, surface stained or dyed, lined or vat lined, embossed or printed, the rate into the United States has been reduced from $14.50 per short ton, minimum 15 per cent and maximum 30 per cent to 15 per cent.

Reductions Made By Canada

Canada, on the other hand, has allowed the following reductions in duties of American paper and products into Canada: Pulpboard, etc., for wrapping reduced from 10 per cent to 7½ per cent; paper sacks or bags reduced from 35 to 30 per cent; wall paper from 35 per cent and 2 cents per pound to 32½ per cent; news printing paper under 2¼ cents per pound from 15 per cent to free; paper all kinds, n. o. p. from 25 to 22½ per cent; cigarette paper in rolls from 25 per cent to 20¼ per cent; book paper, uncoated, for magazines, from 25 to 22½ per cent; cigarette paper, ungummed, in rolls, from 25 to 20¼ per cent; box papers, pads, etc., from 35 to 32¼ per cent; cigarette paper, gummed, in rolls, from 35 to 29¼ per cent; manufactures of paper, n. o. p., from 35 to 30 per cent; paper milk bottle caps, from 27½ to 25 per cent; containers of fiberboard or paperboard from 1½ to 1¼ cents with minimum ad valorem of 35 per cent to "waived"; cigarette papers in tubes and booklets from 35 to 29½ per cent; pulp of wood, and straw or other vegetable fiber, from 25 to 22½ per cent.

Paper Mill Activities Expand In Wisconsin

Daniels Manufacturing Co., of Rhinelander, Enjoys Steady Growth—Consolidated's New Pictorial Gloss Paper In Excellent Demand—Fred Robinson, of Neenah, Wis., Discusses Paper Mill Safety and Prevention of Accidents

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., November 18, 1835—Holiday gift wrappings and tissues are bringing a brisk demand and production schedule to the Daniels Manufacturing Company, Rhinelander, Wis. A new line of designs has been offered the trade this year, in sparkling colors and the most modern designs and patterns.

Steady growth has been enjoyed by the Daniels company. The firm was started in 1915 with one creping machine and a paper trimmer, in a small produce warehouse. As pioneers in the napkin field, the company has built a business that today is housed in a modern, sunlit factory with 30,000 feet of floor space. The printing division is one of the largest multi-color rotary printing plants of its kind in the country.

Under the trade-marks of Krinkle Krepe and Dan-D-Pak, the company is offering its customers every napkin fold made, as well as bathroom tissues and other tissue specialties of all kinds.

Millions of candy and meat wrappers are also being turned out annually, including glassine, greaseproof parchment, transparent cellulose, and other specialties. All paper it uses is Wisconsin-made except Sylphrap, a transparent cellulose.

Niagara Holds Safety Rally

Employees of the Niagara, Wis., mill of the Kimberly-Clark Corporation held a celebration and safety rally last week in honor of winning second place in its class at the National Safety Council meeting at Louisville, Ky. E. W. Stridde, mill manager, who attended the convention, spoke concerning the award, and complimented the employees on the cumulative safety record of the mill. A message of congratulation was read from F. J. Sensenbrenner, president of the company.

Fred Robinson of Neenah, Wis., head of the industrial relations department of the company, spoke on safety and the prevention of accidents. A short talk also was given by Amos Green, chairman of the mill council at Niagara.

An interesting picture of the accident and prevention situation was given in an address by August Sigurdson of Madison, Wis., a member of the Wisconsin Industrial Commission. He said 98 per cent of the accidents are avoidable. There were 20,000 industrial accidents in Wisconsin for the 12 months ending June 30, he said, with a loss of time of more than three days in each instance. Of this number, 132 proved fatal. Mr. Sigurdson also devoted extensive remarks to traffic safety and the elimination of 36,000 highway accidents occurring annually.

Six hundred persons attended the meeting. Don Howard, personnel superintendent, acted as chairman.

News of the Industry

Neat and attractive printed wrappers are now being used by the Wolf River Paper and Fiber Company, Shawano, Wis., for all of its fourteen grades of paper. The shipments formerly were in plain wrappers with gummed labels. The new method has been found popular with the trade, and has resulted in an increase in sales.

Fifty of the dams built in early lumbering days of northern Wisconsin will be rebuilt as WPA projects during the coming year. These dams impounded waters in the northern lakes, and were of material assistance in maintaining a uniform water power flow during dry seasons. Deterioration of the dams has caused the lake levels to recede. Their replacement will assure higher levels.

Consolidated Water Power and Paper Company, Wisconsin Rapids, Wis., is finding a strong market for its Pictorial Gloss, its new paper for fine printing purposes. The paper is produced with coated surface by a strikingly different process than has ever before been installed in any paper mill. Nineteen jobbers have purchased the line in two months since it was introduced, and are finding a ready demand. Eastern, southern and middle west markets are well represented in the jobber list.

"Appleton's Tricolor Enamel" is the name of a new enamel in the super-fine classification introduced by Appleton Coated Paper Company, Appleton, Wis. It is designed especially for use on school and college annuals as this season approaches. The paper has an exceptionally high finish and bright color. It brings up highlights in halftones to splendid advantage.

Engineers and technical men of paper mills and allied industries in the vicinity of Wausau, Wis., have organized the Wisconsin Valley Engineers Club. The first meeting was held November 7 at Wausau. George J. Brabender, of the Marathon Paper Mills Company, was elected president; William F. Egner, Wisconsin Public Service Corporation, vice-president; and W. R. Appleton, Marathon Electric Manufacturing Corporation, secretary-treasurer. Meetings will be held regularly throughout the season to take up technical and civic subjects. Membership will be by election of the entire club.

Evening school classes in pulp and paper making have been resumed by the vocational school at Appleton, Wis. A course is being offered for a period of six weeks presenting an overview of the process of manufacturing pulp and paper. L. J. McNamara is in charge. A series of lectures on steam and electrical engineering has also been started, under auspices of the Appleton unit of the National Association of Power Engineers.

A. C. Remley and family moved from Appleton, Wis. to Wisconsin Rapids, Wis. Mr. Remley, formerly vice-president and general manager of the Patten Paper Company, Ltd., is now associated with the Nekoosa-Edwards Paper Company, Nekoosa, Wis.

Customers of the Consolidated Water Power and Paper Company, Wisconsin Rapids, Wis., have been recipients the last few days of gift boxes of cranberries. The company is located in the largest cranberry producing district in the country, and arranged with the Biron Cranberry Company to send out the boxes from its exceptional harvest this year.

Crane & Co. To Reopen Berkshire Mill

PITTSFIELD, Mass., November 18, 1935—Giving increased business as the reason, Crane & Co., Dalton paper manufacturers, announced they would reopen the old Berkshire mill in December. The plant has been closed since 1931. About fifty workers will receive employment.

Position of Boston Paper Industry Favorable

Volume of Orders for Various Grades of Fine Paper Well Up to Average for Season—Demand for Wrapping Paper Generally Good, Especially for Holiday Specialties—Box Board Moving Slowly—Paper Stock Request Less Pronounced

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., November 18, 1935—Reports from the Boston paper market continued favorable for the last week, the volume of orders showing a good average. With some dealers, in fine paper, business has fallen off to some extent in November, compared with October, although with others, it was decidedly better. In wrapping paper, the demand was generally good, especially so in connection with orders for the holiday season. Fancy papers were in lively demand. The call for box boards was fair, although somewhat less active than during the previous month.

In some divisions of the paper stock market, the demand was less pronounced, with the local mills becoming well supplied with material. There was not so much movement in low grades of old papers, although prices were unchanged, the market remaining steady. Bagging was very active, especially with orders from the shredders, who had a good business. The Western demand was particularly favorable.

There was a lively call for new domestic rags. Orders received by the Holyoke paper mills were in much greater volume, so that the price of new rags was considerably firmer. The price of khaki cuttings advanced to .03¾@.04 from .03½@.03¾. In domestic rags, there was a diminished demand for roofing stock, so that prices were weaker. The No. 1 grade declined to 1.45@1.50 from 1.50@1.60, No. 2 to 1.25@1.30 and No. 3 to 1.05@1.10 from 1.05@1.10. In foreign rags, mills offered only 1.40 for dark cottons, whereas importers asked 1.60.

Paper Merchants To Convene

An important meeting of the New England Paper Merchants Association is to be held Tuesday evening, November 26, at the Hotel Touraine. Divisional meetings will precede the dinner. An unique sales program under consideration for the last two months will be presented to the wrapping paper group, Vice-President Stone presiding. Important contemplated changes on manufacturers' selling policies will be discussed by the fine paper group, Vice-President Winter presiding. President Stetson will be toastmaster at the dinner, at which N. E. Peterson, nationally known economist of the First National Bank of Boston, will be the speaker.

The short business session will cover adoption of the new by-laws as recommended by the committee named at the last meeting, consisting of Messrs. Esty, Blackman and Secretary Cummings, adoption of resolutions in respect to fair labor and trade practices, and the finanical report. To conform to the National Association plan, the election of officers (usually occurring at this meeting) will take place at the January meeting, the present officers holding over until their successors are chosen. It is urged that each of the 61 member houses be represented at the meeting.

News of the Industry

The Fort Hill Paper Company, now located at 145 High street, is to remove some time before the first of the year to 99-119 Oliver street. The company will occupy larger space on two floors. The office will be on the second floor.

The H. D. Catty-Franz Euler Corporation, confectioners' papers, has been enjoying a very good business, not only at the local office, but at all offices.

William F. Mann, of the sales staff of Baird & Bartlett Company, attended the Harvard-Princeton football game November 9 and passed a few days in New York City last week.

Among the New England manufacturers participating in the exhibition of new material and new devices produced during the depression, to be held at the Hotel Statler, November 21 and 22, in connection with the tenth annual New England conference are the Dennison Manufacturing Company, Framingham, Mass., and the Plymouth Cordage Company, North Plymouth, Mass.

American Writing May Get $1,000,000 Loan

HOLYOKE, Mass., November 19, 1935—Sidney L. Willson, President of the American Writing Paper Company, Inc., received word last week from New York that the Federal Reserve had acted favorably upon the petition of the company for a $1,000,000 loan for renovation and rehabilitation of the plants. Certain conditions were part of the favorable report but Mr. Willson has not yet received them or been apprised of their tenor. Official confirmation is expected to come through the Boston office.

While the engineering force has not yet been given instructions as to just what will be done it is probable that some of the machines will be remodelled to better meet the changing demand for paper. If the loan is granted, it will be probably a part at a time. The last time that extensive renovations took place a half a million dollars was expended.

B. G. Dahlberg Heads Celotex

CHICAGO, November 18, 1935—Bror G. Dahlberg was elected to president of the Celotex Corporation, which is taking over the properties of the Celotex Company, maker of building materials, whose plan for reorganization under Section 77b of the Amended Bankruptcy Act was approved recently. Mr. Dalhberg headed the Celotex Company.

Others elected were: T. B. Munroe and C. G. Muench, vice presidents, and C. G. Rhodes, secretary. The directors are: W. W. Colpitts, E. J. Costigan, John G. Gets Jr., Wallace Groves, Walter S. Mack Jr., James Marshall, W. B. Nichols and Henry A. Werdelin, in addition to Messrs. Dalhberg, Muench and Munroe.

American Writing Reduces Loss

The American Writing Paper Company, Inc.—For nine months ended September 30 net loss of $221,014 after taxes, depreciation, interest, etc., against net loss of $389,854 in first nine months of 1934. For quarter ended September 30, last, indicated net loss, based on a comparison of company's reports for six and nine months' periods, was $94,999 after taxes and charges, against net loss of $50,534 in preceding quarter and net loss of $120,080 in September quarter of previous year.

Paper Business Declines Slightly In Chicago

Despite Usual Seasonal Lull, Price Structure Is Well Maintained, In Most Instances—Fine Paper Division Continues to Progress Satisfactorily—Kraft Paper Section Exhibits Strong Undertone—Ground Wood Papers Moderately Active

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., November 18, 1935—With December approaching, a seasonal lull is being experienced in the local paper market though the slackening in demand as inventories are depleted for year end purposes is reported to have no appreciable effect on the price structure. On the contrary, the basic strength of the great majority of the Chicago lines continues to grow and local commentators look for genuine upward revision after the first of the year.

Locally, fine papers continued to progress satisfactorily. Kraft markets were firm with demand slackening as holiday requirements have been filled. This situation applies to holiday specialties in general. Groundwoods had a fair week and continued to strengthen their basic position. Books and covers continued firm. The board market, after an earlier broadening of demand, is experiencing a seasonal lull. Waste papers were stronger as news of the purposes of the new Waste Paper Institute was accepted in Chicago as a forward step.

Container Reports Profits

Paving the way for possible revision of capital structure, the Container Corporation of America last week voted to pay off all arrearages of dividends on preferred stock which totaled $19.25 per share, including the current quarter. Walter P. Paepcke, president, pointed out that October earnings alone were sufficient to cover the $232,272 required to make the payments approved this week. For the first nine months of the year consolidated net income was $826,319, indicating a net in excess of $1,058,591 for the ten months ending with October and a balance of more than $636,000 available for Class A and class B common stocks after paying the arrearages on the preferred.

Mr. Paepcke, in commenting on the satisfactory October business, also stated that prospects for the balance of the year were good, considering the various seasonal factors. He expects operations to be on a profitable basis, with costs and selling prices maintained. With reference to revision of the capital structure, long planned by the company and made possible by the payment of back dividends, an announcement is expected shortly.

Waste Material Institute Formed

The Secretary of State of Illinois has recently issued a new charter to the Waste Material Institute of Chicago which has opened offices in the Builders Building, 228 North LaSalle street, with Maurice Pushker in charge as executive secretary. Enlargement of markets of the waste material industry and promotion of fair trade practices are reported as two of the major objectives of the new Institute. Detailed statistical research will be made into market conditions, investigations expected to show conclusively which waste products are in best demand or which have the best prospects for the future. The data is expected to enable members to market their merchandise to the best advantage. Economical methods of plant operation will also be given much consideration. Officers of the Institute include the following: H. J. Finder, Aetna Waste Paper Company, president; Joseph Cohen, Sangamon Paper Grading Company, vice president; E. B. Bernsen, Continental Paper Stock Company, treasurer and George L. Sparberg, Michigan Mill Supply Company, secretary. The board of directors includes Mr. Cohen; Max Patinkin, of the Peoples Iron and Metal Company; Harold Schilling, United States Paper Supply Company; J. V. Spachner, Pioneer Paper Stock Company and Mr. Sparberg. Charter members in addition to the officers named above are M. Bush, Northern Paper Stock Company; Louis Rosenberg, Ajax Waste Paper Company and Michael Rizzo, of the Eocco Rizzo Company.

Wood Pulp Rates

Approval has been given by the traffic executives committee, eastern territory, to the publication of reduced rates on imported wood pulp from Atlantic coast ports to destinations in the Miami Valley. The approval for publication of blanket rate of 20½ cents from Baltimore-Hampton Roads to Miami Valley ports, this rate to be based on 70,000 pound carloads. The pending rate will compete with the wood pulp movement from the Baltic by way of Montreal and thence to Lake Ports for rail handling to Miami Valley destinations—an interesting development from the standpoint of Chicago and Middle West consumers. If the pending rates are acceptable it is reported than an advantage of about 50 cents per ton would be given to the rail-Atlantic port movement as compared to the Baltic movement. Baltic-Montreal shipments have been moving for a total of about $8.80 per ton, including all factors. The new 20½ cent rate, combined with other factors, would give the Atlantic shipments a rate of approximately $8.35 per ton to interior Ohio points.

Eastern Staff Changes

George A. Crafts, for the past four years identified with the New York offices of the Eastern Manufacturing Company, has been transferred to the Chicago sales offices in the Conway Building. Mr. Crafts replaced W. T. Tilden who accepted a position with Mead Sales about a month ago. Mr. Crafts is the son of George E. Crafts, now retired but for thirty-five years vice president and treasurer of the Orono Pulp and Paper Company and very well known in paper circles. The new Eastern representative in this territory was in New York for eight years, four with Mead Sales and four with Eastern, during which time he gained valuable experience in both the coarse and fine paper fields. While with Eastern much of his time was spent in the carrying out of sales promotion plans for that firm.

Ralph A. Masten Gets Paper Patent

GLENS FALLS, N. Y., November 16, 1935—Announcement is made that Ralph A. Masten, of this city, has been awarded a patent on his design of a device for determining the smoothness of paper and similar sheet materials. The apparatus is operated by passing a stream of air between the surfaces of the material and the testing device, and measuring the time required for a unit quantity of air to pass. Application for patent was made early last spring and a number of features embodied in the design have been approved. Patent rights have been awarded to a concern in New York City.

Ontario Paper Industry Gradually Improving

Volume of Fine Paper Sales Expands Steadily Under Better Demand for Book, Cover, Bond and Writing Papers—Coarse Paper Section, However, Only Moderately Active—Outlook for Paper Stock Division More Encouraging

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ont., November 18, 1935—Although the market for some lines of paper in Ontario is somewhat spotty, others show a gradually improving condition and on the whole the distributing end of the trade is promising. Sales of fine papers have increased during the present month under a steadily improving demand for book paper, bonds and writings and there is every indication that the year's record will show a marked improvement in turnover as compared with 1934. Wholesalers are doing quite a nice business just now and there is a fair amount of activity in the mill trade. The coarse paper market, however, is proving slow at the pick-up and the paper bag situation is unsatisfactory. There has been little improvement, if any, in paper converting lines.

In the waste paper section, conditions are gradually improving. Surpluses are being slowly depleted, although this does not mean that there is likely to be an insufficiency of waste paper. There are a number of reasons for the greater surplus of the past one or two years, one being the demand of the consumer for board made with a larger proportion of pulp than heretofore. This has meant a smaller demand for waste paper. Fortunately, however, increasing demand for board by the trade as a whole, plus a growing export business, have caused a correspondingly larger demand for waste paper.

Trust Company Quits Export Association

The National Trust Company, Toronto, as receiver and manager for the Great Lakes Paper Company, this week announced that "With the authorization of the court" it has resigned from the Newsprint Export Manufacturers' Association of Canada, so the receivership would not be in the position of contributing to expenses of the association in its opposition to the vote of the bondholders allowing the Gefaell-Aldrich interests to take over the Great Lakes concern.

Paper Box Firm In Good Shape

Corrugated Paper Box Company, Toronto, has experienced an increase in business during the current year and net profit available for preferred dividends will be well in excess of the $7.62 per share reported for 1934. The company's working capital position has been further improved this year and is approximately $300,000 as compared with $258,370 at the end of 1934. Since preferred dividend arrears amount to $33.25 per share, a rearrangement of capital is contemplated and it is understood that a committee of preferred shareholders has virtually reached an agreement with the management of the company.

Prince Rupert Company Organized

Word comes from Vancouver that the British-American Pulp and Paper Mills, Ltd., has completed organization. The company is financed largely by San Francisco capital and has been formed to take over the Mutual Pulp and Paper Company's property and operate a large pulp mill at Prince Rupert. J. O. Stewart, of San Francisco, of the Pacific Coast Joint Stock and Land Bank, is president of the new company. Managing director and chairman of the board will be Frank L. Buckley, of Vancouver, long identified with logging and timber in Northern British Columbia. Other members of the board, all of San Francisco, include Edward A. Thompson, David D. Bohannon, Harry E. Saunders, Gordon Lantz and Alfred Hargreave, Capitalization of the company will include $6,000,000 first mortgage five per cent. bonds, $2,500,000 preferred stock and $900,000 common stock. Construction of the mill will be begun within sixty days and operation is expected within fifteen months after building has got under way, Mr. Buckley states. British-American will manufacture high-grade bleached sulphite pulp and expects to find a ready market in rayon mills in eastern United States and the British Isles. The mill is to be erected on the old G. T. P. dry dock at Prince Rupert which has been taken over from the Dominion Government at a cost of $500,000.

No Cancellations of Timber Limits

Claiming it is quite apparent that some one is attempting to raise false alarms as to action the Ontario Government may take in regard to the Great Lakes Paper Company the Hon. Peter Heenan, Minister of Lands and Forests, this week took exception to a news story implying that the Government intended to cancel the timber limits held by the company "in order to block the so-called Gefaell offer."

"The Government has stated already," declared Mr. Heenan, "that it will actively oppose this plan, but I wish to declare most emphatically that the cancellation of any legal rights to timber supply has never been suggested nor considered by the Government. The ruthless and destructive competition which has prevailed in the newsprint industry for several years back is largely responsible for the condition in which the industry finds itself to-day, and I feel certain that the continuation of destructive practices will destroy one of the leading industries of Canada, so that not only the bondholders, but the workmen in the mills and in the bush, as well as the settlers and all those engaged in supplying these concerns, are bound to suffer."

Paper Box Company Expands

To meet the ever-increasing demand for corrugated paper packing boxes, the Wilson Box and Lumber Company, Ltd., has completed installation of a new corrugating paper machine at its Fairville, N. B., plant and with the new equipment now in operation it will eliminate the necessity of importing the prepared paper from Quebec. With the new machinery in operation, it was said that many tons of superior kraft paper from New Brunswick timber will be purchased by the company from the Bathurst Power and Paper Company, Ltd. For twenty-five years the Wilson Company has been connected with the box manufacturing trade. In 1931 the company branched out from the wooden box trade and commenced the manufacture of paper boxes, but without proper equipment the importation of paper was necessary. The new machinery is in a 110 foot long block and has a capacity that will cover requirements for many years. The plant has been enlarged to accommodate it.

Paper Demand Well Sustained In Philadelphia

Upward Trend Experienced Since Early Autumn Still In Evidence—Position of Paper Stock Industry Practically Unchanged—Better Grades of Waste Paper Moderately Active—Lower Grades of Paper Stock Remain Listless

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., November 18, 1935—The paper market generally sustains the upward trend which it has been experiencing since early Fall.

There is, however, no change to report in the waste paper market. Business in the lower grades continues quiet, with demand for the better grades fairly active.

Association Activities

The Board of Governors of the Philadelphia Paper Trade Association met at luncheon at the Down Town Club during the Week; Norbert A. Considine, president of the association, presided.

A luncheon meeting of the fine paper division of the association was held at the Down Town Club on Tuesday; Ormand Freile presided.

The wrapping paper division of the association held its meeting in the headquarters of the association on Wednesday; George Ward of D. L. Ward Paper Company, presided.

The first of a series of luncheon meetings of the Philadelphia Waste Paper Merchants' Association was held the early part of the week in the Ivory Room of the Adelphia Hotel. It was definitely decided to make these monthly luncheon meetings a permanent feature of the association.

Christmas Party Planned

Practically the last meeting of the year was held by the Philadelphia Paper and Cordage Association in the Rose Room of the Adelphia Hotel on Friday, November 15, with President Harry S. Platt in the chair. The Entertainment Committee, headed by E. K. Lay and his associates, Harry S. Platt, Ralph Matthias, Raymond F. Armstrong and George K. Hooper made final arrangements for the association's Christmas Party on December 19 in the Crystal Room of the Adelphia Hotel. Included in the program of entertainment will be a 4-piece orchestra, tap dancers, supplied by a private dancing school, professionally trained dogs, recitations, a musical saw number by Ralph Matthias and other attractions too numerous to mention. Fifty children, supervised by the Salvation Army, will be the guests on this occasion and, surrounded by members, will be treated to a turkey dinner. The association will present to these little guests, toys, sweaters, games, candies, books, dolls, oranges and other gifts donated by members.

Said former President George K. Hooper: "It is on this occasion that the eighty members of the Philadelphia Paper and Cordage Association find an opportunity to prove the truth of the ancient but neglected adage, 'It is more blessed to give than to receive.' The date of the party is so arranged that the Christmas spirit will have become apparent and the members and their friends have come to regard this gala event as a personal opportunity to share with the less fortunate in a material way and demonstrate that Christ still lives and rules. Every man or woman engaged in the manufacture or selling of paper and twines, not only in Philadelphia but in any part of the country, is invited to be present at this party, and assurance is given that he or she will be convinced that on this occasion a demonstration of real brotherly love, in the midst of this busy world of uncertainties and selfishness, can still be demonstrated."

Association Work Discussed

William A. Meeks, executive secretary of the Typothetae, was the guest speaker, and took for his topic "Co-operative Effort in Association Work." Mr. Meeks is conceded to be better qualified to speak on this all-important subject than any one in Philadelphia, as a result of his untiring efforts for the past ten years in building up the effectiveness of the Typothetae to its present status. He interspersed his talk with parables from the Bible. Said Mr. Meeks: "The trade secretary must always be an optimist, because, as a rule, business men are hesitant to co-operate as they should; perhaps there is too much rugged individualism among them. But the secretary must have the patience of Job, which reminds me of the two brothers who were in the Mississippi floods. They had a sign which read 'Open for business—Noah stood it—Why worry?'

Work of Collection Bureau

"There is one thought I would like to leave with you and that is you must keep in mind your association cannot help you unless you are willing to help yourselves. It may interest you to know that in two years—since we started the Collection Bureau of the Paper Trade—upwards of $360,000 have been paid to be taken off the 90-day list.

"In the ten years that I have been connected with the Typothetae we have collected more than one million dollars in bad debts. And we are now collecting 77 per cent of all accounts sent us as against 42 per cent in 1926. In our credit department we had an average of 180 inquiries per month. Now, we have more than 1,000 some months, with a general average of 500 monthly. In 1926 we had to have some one stay at night in order to keep the records straight with 180 inquiries—now we can give one thousand and no one stays at night. In the ten years we have given more than 30,000 credit reports."

News of the Industry

Leslie Bartlett of Eastern Paper Company, who has been on the sick list, expects to be back at his desk about the first of the year.

Amos Coath, of Fred Winne Sons, is on the sick list, and his many friends are hopeful that before long he will have completely recovered and will be on hand at the Christmas party of the Paper and Cordage Association, to which he has devoted so much of his time and good work on previous occasions.

Henry C. Lamay Dead

[FROM OUR REGULAR CORRESPONDENT]

NORWOOD, N. Y., November 11, 1935—Henry C. Lamay, for several years superintendent of the local branch of the St. Regis Paper Company, died this week in a neighboring village. He retired several years ago. The survivors include his wife, a daughter and two brothers.

Delaware Valley TAPPI Discusses Hydration

The 32nd regular meeting of the Delaware Valley Section of the Technical Association of the Pulp and Paper Industry opened the 1935-36 activities in that section. Following the dinner which was enjoyed by about 60 members, Chairman Cannon discussed the plans for the coming year. The program as outlined gave a somewhat broader scope to the meetings.

Dr. G. E. Landt Opens Program

Dr. G. E. Landt of the Continental Diamond Fibre Company then opened the program with a technical discussion of the hydration of cellulose. The term hydration introduced to chemistry by a chemist with a leaning toward the classical in his opinion. Basically a reaction between a substance and water hydration is a property of many compounds, organic and inorganic. The two schools of thought on cellulose hydration differ primarily in their explanation of the method of bonding of the water molecules with cellulose, i. e. whether mechanical or chemical. Schweizer's reagent, one of the first solvents for cellulose. Cellulose can be regenerated from this solution. This and other facts point to a cellulose-copper combination. Following up these points with interesting demonstrations of the regeneration of cellulose from solutions or gels Dr. Landt pointed out that it was logical to believe that the regenerated cellulose was of such a nature as allowed for the ready combination with water to form a hydrate. The drying of the regenerated gels results in tremendous shrinkage indicating water loss and probably union of the dehydrated molecules. In paper manufacture beating results in the hydration of the cellulose and the application of pressure in presence of moisture to the hydrated cellulose results in further hydration with transparency. It is possible to accomplish similar hydrates therefore, by chemical and mechanical means.

E. N. Wennberg Speaks

E. N. Wennberg, also of the Continental Diamond Fibre Company, followed Dr. Landt with a discussion of the comparison of mechanical and chemical hydration of cellulose from a practical standpoint. His work has indicated to him in variance with other theories, that there is a portion of 2—3 per cent of the water in cellulose which is not water of capillarity. This water tends to toughen and cement the cellulose together. The interesting discussion which followed these papers covered many phases of the subject from a technical and practical standpoint.

The December meeting will cover an important phase of the paper industry, i. e. "Marketing."

Among Those in Attendance

Among those in attendance were the following: E. J. Albert, Thwing-Albert Instrument Company, Philadelphia, Pa.; A. M. Ball, Hercules Powder Company, Wilmington, Del.; H. W. Alden, Lowe Paper Company, Ridgefield, N. J.; R. M. Bates, T. M. Royal & Co., Philadelphia; R. H. Bentz, P. H. Glatfelter Company, Spring Grove, Pa.; J. Barsha, Hercules Powder Company; A. J. Barea, Paterson Parchment Paper Company, Bristol, Pa.; J. H. Brougham, Penn Fibre Board Company, York, Pa.; H. L. Becher, Agasote Mill Board Company, Trenton, N. J.; W. E. Brow, Container Corporation of America, Manayunk, Pa.; A. M. Cooper, Westinghouse Electric and Manufacturing Company, Philadelphia; Miss R. M. Cobb, Lowe Paper Company, Ridgefield, N. J.; J. d'A. Clark, Scott Paper Company, Chester, Pa.; C. M. Connor, Valley Forge Laboratories, Conshohocken, Pa.; H. P. Cannon, Container Corporation of America; O. C. Cordes, Downingtown Manufacturing Company, Downingtown, Pa.; Harvey Etra, Pen Fibreboard Company, York; E. A. Georgi, Hercules Powder Company; L. Houloose, Mazer Paper Company, Lansdowne, Pa.; J. C. Harper Jr., West Jersey Paper Manufacturing Company, Camden, N. J.; Miss L. V. Hans, Pettengill Inc., New York, N. Y.; Leslie Justice, Container Corporation of America; W. C. Jaj, Sanitary Products Corporation, Philadelphia; Jaldemar Jacobsen, National Aniline and Chemical Company, Philadelphia; C. E. Kinney, Hercules Powder Company; C. J. Kern, Moore & White Company, Philadelphia; W. A. Kirklin, Hercules Powder Company; P. H. Kropp, Paterson Parchment Paper Company; G. E. Landt and E. N. Wennberg, Continental Diamond Fibre Company, Bridgeport, Pa.; F. H. Lane, Hercules Powder Company, A. J. Luettgen, P. H. Glatfelter Company; F. J. McAndrews, McDowell Paper Mills, Manayunk; G. H. Mains, Phenolite Company, Wilmington, Del.; M. C. Moore, Hercules Powder Company; M. C. Maxwell, McDowell Paper Mills, Manayunk; Charles McDowell, McDowell Paper Mills, Manayunk; W. P. Quinn, Container Corporation of America; Kenneth Rose, P. H. Glatefelter Company; C. W. Rivise, Philadelphia; John Roslund, Moore & White Company; L. M. Sutherland, Sloane-Blabon Corporation, Trenton, N. J.; D. G. Sutherland, Trenton, N. J.; C. A. Shubert, Dill & Collins Inc., Philadelphia; H. H. Street, National Vulcanized Fibre Company, Yorklyn, Del.; G. L. Schwartz, Du Pont Company, Wilmington; H. C. Schwalbe, Dill & Collins Inc.; Adolf Schnabel, Mazer Paper Company; R. W. Schaffer, Mac Andrews & Forbes Co.; W. M. Shoemaker, National Vulcanized Fibre Company; J. Carl Schmidt, Du Pont Company, Philadelphia; P. H. Scrutchfield, H. M. Spurlin, Henry Reeves Jr., M. L. Little, all of Hercules Powder Company; H. P. Taber, H. P. Taber Laboratory, Wilmington; A. E. Waugh, U. S. Rubber Company, Philadelphia; A. W. Wickham, Mac Andrews & Forbes Company; Tom Morrisy, Shuler & Benninghofen, Hamilton, Ohio; C. F. Weitzel, Pennsylvania Salt Manufacturing Company, Philadelphia; J. H. Young, Du Pont Company, Wilmington; A. Zabenko, Hercules Powder Company; and S. D. Reynolds, Container Corporation of America.

Mrs. H. A. Maycrink Elected Director

Industrial Container Corporation, Brooklyn, N. Y., of which George J. Posner is president, announces that Mrs. Helen A. Maycrink has been elected treasurer and a director of the company.

Mrs. Maycrink was connected for a great number of years with the International Paper Company and its subsidiaries; for the past 12 years she was assistant treasurer of the International Paper Company and Southern Kraft Corporation. She has a wide acquaintance in the paper trade and is particularly well known in the corrugated box industry. She has gained a nation-wide reputation as an expert on credits and is outstanding as the only woman to have ever been elected to the board of directors of the New York Credit Men's Association, which office she still holds.

Lake States TAPPI Discusses Printing

The Lake States Section of the Technical Association of the Pulp and Paper Industry met for its second meeting of the season on Tuesday, November 12, 1935, at 6:00 P.M. at the Conway Hotel, Appleton, Wisconsin. The attendance of members and guests exceeded 125 persons. The program was focussed upon printing and the papers were presented by representatives from the printing ink and practical printing interests respectively.

F. E. Barmeier of the American Printing Ink Company of Chicago, discussed "The Application of Printing Ink to Paper from the Printers Viewpoint." He described the fundamental factors which obtain for various classes of printing inks and continued with an explanation of how inks must be modified to meet varying conditions of press or paper. Such modifications will enable a printing job to be carried out but invariably inferior results are obtained. A plea was made for cooperation of the paper manufacturer and the ink manufacturer.

"Printing Paper Problems," was the topic of R. I. Drake's paper. A resume of the author's observations and experience emphasized numerous details which may receive but superficial treatment from the paper makers and yet may be of prime importance to the printer. The physical characteristics of the sheet which aid or hinder satisfactory printing were summarized, after which the speaker concluded with a request for a mutual nomenclature to serve printer and paper maker. The general discussion which followed the presentation of the papers brought forth profitable and interesting material.

Among Those Who Attended

Among those who attended were: J. J. Regan, D. C. Doughty and F. R. Ballantyne of Bowater's Mersey Paper Mills Ltd., Cheshire, England; P. J. Abel, Stickle Steam Specialty Company, Indianpolis, Ind.; E. F. Anderton, Institute of Paper Chemistry, Appleton, Wis.; M. S. Apple, Ft. Howard Paper Co., Green Bay, Wis.; A. E. Bachman, Kimberly-Clark Corporation, Neenah, Wis.; F. A. Biesel, Menasha Printing Ink Co., Menasha, Wis.; H. W. Bialkowsky, Gilbert Paper Paper Company, Menasha; Al Moss, Institute of Paper Chemistry; H. F. Bins. Hoberg Paper and Fibre Company, Green Bay; Paul Boronow, Valley Iron Works, Appleton; W. H. Burns, same company; L. A. Carpenter, Bergstrom Paper Company, Neenah; W. C. Christensen, Joe Roskams, both of Hoberg Paper and Fibre Company; A. B. Collins, Wisconsin Rapids, Wis.; B. Cowan Standard Oil Company, Appleton; Arthur Derbique, Hoberg Paper and Fibre Company; G. F. Enderlein, Mosinee Paper Mills, Mosinee, Wis.; J. R. Fanselow, Kimberly-Clark Corporation; Jim Foote, Institute of Paper Chemistry; A. T. Gardner, Combined Locks Paper Company, Combined Locks, Wis.; G. R. Gerrits, Kimberly-Clark Corporation; J. H. Graff, Institute of Paper Chemistry; E. A. Gutzmacker, Marathon Paper Mills, Menasha; J. P. Hagenauer, American Paper and Pulp Association, New York, N. Y.; R. N. Hollands, Marathon Paper Mills; A. J. Hutchinson, Standard Oil Company, Green Bay; E. B. Jacobi, Green Bay; H. H. Jacqumin, Ft. Howard Paper Company, Green Bay; R. E. Kissel, H. Donkers, Hoberg Paper and Fibre Company; A. F. Klitzein, Appleton; Otto Kress, Institute of Paper Chemistry; S. I. Kukolich, Neenah Paper Company, Neenah; Alphonse La Marre, Ft. Howard Paper Company; Lloyd Lang, Kimberly-Clark Corporation; F. D. Luic, Mosinee Paper Mills; R. D. McCarron, Wisconsin River Paper and Pulp Company, Stevens Point, Wis.; W. M. McNair, Weyerhaeuser Timber Company; C. R. Morse, Wisconsin River Paper and Pulp Company; A. W. Neubauer, Institute of Paper Chemistry; J. J. Nylund, General Dyestuff Corporation, Chicago; O. A. Reinke, Kimberly-Clark Corporation; C. Riggles, A. W. Redlin, both of Kimberly-Clark Corporation; R. J. Rioux, Interlake Pulp and Paper Company, Appleton; N. A. Schauer, Milwaukee, Wis.; August F. Schmidt, Bergstrom Paper Company, Neenah; R. L. Shaw, Milwaukee; F. G. Sherman; John Sobota, Ft. Howard Paper Company; J. E. Spalding, Instiute of Paper Chemistry; J. A. Staidl, Thilmany Pulp and Paper Company, Kaukauna, Wis.; John Starnak, Menasha; Alex Stayanov, Marathon Paper Mills, Menasha; J. C. Tongren, Institute of Paper Chemistry; I. R. Valentine Jr., Fox River Paper Company, Appleton; A. Peepenberg, Thomas Heiss Jr. and R. J. Vechinski, of Combined Locks Paper Company; E. H. Voigtman, Kimberly-Clark Corporation; Reinhold Vogt, Consolidated Water Power and Paper Company, Wisconsin Rapids, Wis.; C. L. Wagner, Marathon Paper Mills, Rothschild, Wis.; J. E. Watson, Wisconsin Wire Works, Appleton; S. D. Wells, Combined Locks, Wis.; D. B. Wicker, Thilmany Pulp and Paper Company; A. D. Wilkinson, Kimberly-Clark Corporation; E. R. Williams, Neenah Paper Company, Neenah; Milton Williams, Bergstrom Paper Company; Harold Woehler, Fox River Paper Company; R. R. Wolfe, Weyerhaeuser Timber Company; R. J. Zaumeyer, Kimberly-Clark Corporation; and A. G. Wakeman, Fox River Paper Company.

Compensatory Tax on Paper Fabric Tape

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., November 13, 1935.—In accordance with findings and a proclamation by the Secretary of Agriculture, effective November 1, that the processing tax on cotton is causing and will cause to processors of cotton disadvantages in competition between cotton fabric tape and reinforced paper tape, a compensatory tax became effective as of that date on the processing of reinforced paper fabric into reinforced paper tape. The rate of the tax is 21.7 cents per thousand 1-inch yards of reinforced paper fabric tape, approximately the same rate per equivalent unit now in effect on the processing of cotton.

Regulation issued in connection with the proclamation provide that in any case where the reinforced paper fabric tape has any cotton content the tax shall be reduced by an amount equivalent to the amount of the processing tax on cotton used in the manufacture of the reinforced paper fabric tape.

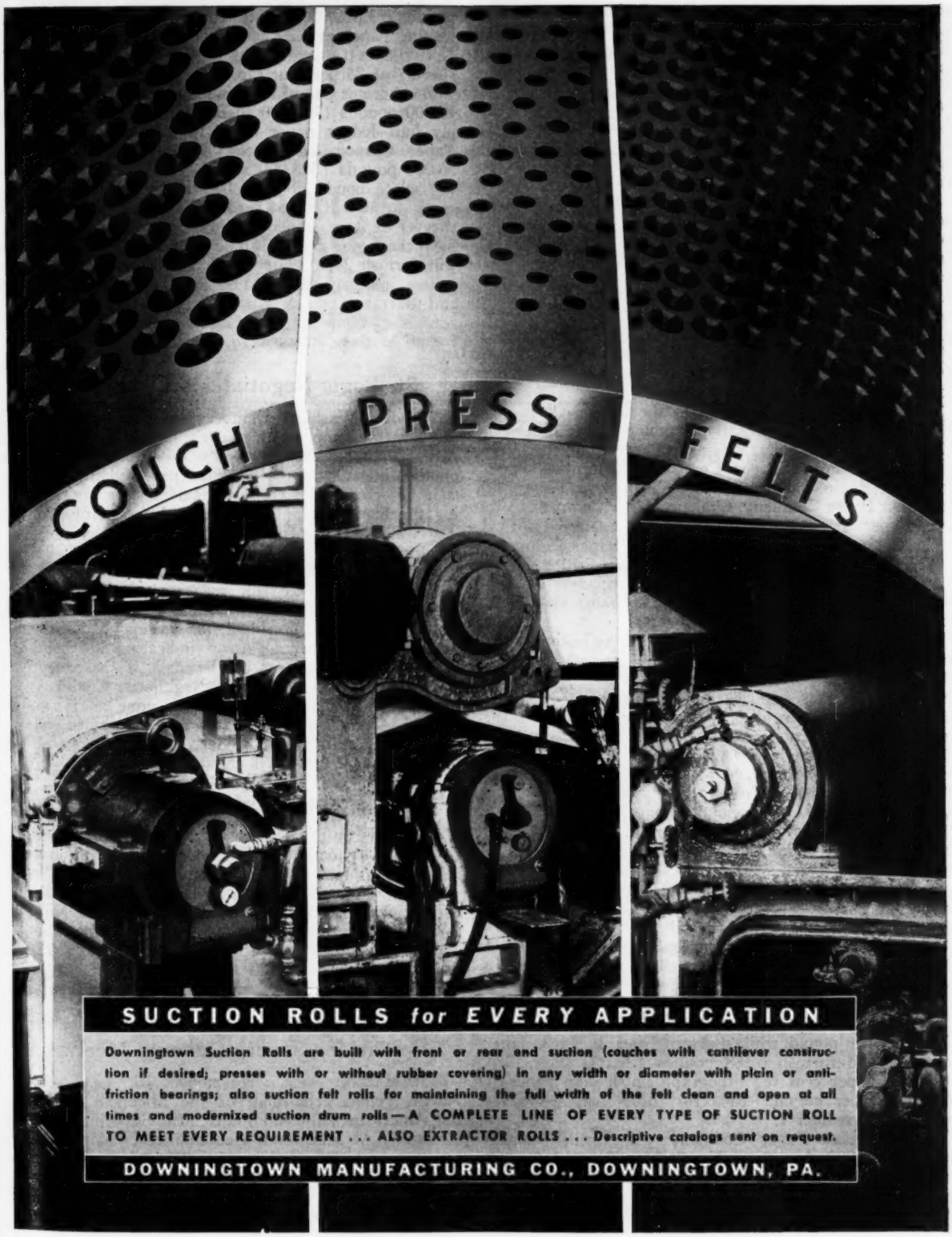
The regulations also provide for the necessary technical definitions and for conversion factors which are necessary to determine the amount of tax imposed on floor stocks and to determine the amount of refunds to be made pursuant to the terms of the Agricultural Adjustment Act, as amended.

Mead Corp. Resumes Dividends

[FROM OUR REGULAR CORRESPONDENT]

DAYTON, Ohio, November 11, 1935—The Mead Corporation Friday resumed dividends on the 6 per cent cumulative preferred stock, by declaring a disbursement of $1.50 a share, payable December 2, record November 15. No dividends have been paid on the preferred stock since June 1, 1932, and arrears currently are $19.50 a share.

DOWNINGTOWN



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Downingtown Suction Rolls are built with front or rear end suction (couches with cantilever construction if desired; presses with or without rubber covering) in any width or diameter with plain or anti-friction bearings; also suction felt rolls for maintaining the full width of the felt clean and open at all times and modernized suction drum rolls—A COMPLETE LINE OF EVERY TYPE OF SUCTION ROLL TO MEET EVERY REQUIREMENT . . . ALSO EXTRACTOR ROLLS . . . Descriptive catalogs sent on request.

DOWNINGTOWN MANUFACTURING CO., DOWNINGTOWN, PA.

Government Paper Bids and Awards

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., November 20, 1935.—The Government Printing Office has received bids at 6.54 cents per pound for 24,450 pounds (150,000 sheets) of white sulphite ledger paper from: Virginia Paper Company, Whitaker Paper Company, Mathers-Lamm Paper Company, Enterprise Paper Company, Reese & Reese, Inc., Walker-Goulard-Plehn Company, Inc., J. R. Howarth Paper Company, Old Dominion Paper Company, Aetna Paper Company, Barton, Duer & Koch Paper Company, R. P. Andrews Paper Company, J. W. Butler Paper Company, Paper Corporation of the United States, and Stanford Paper Company.

For 23,000 pounds (100,000 sheets) of white sulphite index paper: Virginia Paper Company, 6.06 cents per pound; Whitaker Paper Company, 6.11 cents; Enterprise Paper Company, 6.11 cents; Reese & Reese, Inc., 6.11 cents; J. R. Howarth Paper Company, 6.06 cents; Old Dominion Paper Company, 6.36 cents; Aetna Paper Company, 6.06 cents; Barton, Duer & Koch Paper Company, 6.06 cents; R. P. Andrews Paper Company, 6.06 cents; J. W. Butler Paper Company, 6.06 cents; Paper Corporation of the United States, 5.96 cents; and Stanford Paper Company, 6.06 cents.

For 144,000 pounds (2,000,000 sheets) of white sulphite bond paper at 6.06 cents per pound from: American Writing Paper Company, Whitaker Paper Company, John F. Post, Cauthorne Paper Company, Enterprise Paper Company, Reese & Reese, Inc., L. Hyman & Sons, Old Dominion Paper Company, Graham Paper Company, Virginia Paper Company, Aetna Paper Company, Stanford Paper Company, Barton, Duer & Koch Paper Company, R. P. Andrews Paper Company, J. W. Butler Paper Company, and Mathers-Lamm Paper Company. On this item the Stanford Paper Company also had an alternate bid of 5.82 cents.

The Printing Office has announced the following paper awards:

The Paper Corporation of the United States will furnish 24,450 pounds (150,000 sheets) of 28 x 34, white sulphite ledger paper at 6.54 cents per pound and the same firm will furnish 23,000 pounds (100,000 sheets) of 22½ x 28½ single ply white sulphite index at 5.96 cents per pound. An award for 144,000 pounds (2,000,000 sheets) has been divided equally at 36,000 pounds each all at 6.06 cents per pound among the following: R. P. Andrews Paper Company, Barton, Duer & Koch Paper Company, Whitaker Paper Company, and John F. Post. Barton, Duer & Koch will also furnish 5,000 pounds (58,000 sheets) of 21 x 32, 25 per cent rag white ledger paper at 9.41 cents per pound and the Old Dominion Paper Company will furnish 38,800 pounds (200,000 sheets) of 50 per cent rag salmon index paper at 10.97 cents per pound. Bids for all of these items were received on November 4.

The Mathers-Lamm Paper Company will furnish 10,000 pounds of No. 1 gummed kraft paper in 24-inch rolls at 7.29 cents per pound while Barton, Duer & Koch Paper Company will furnish 6,588 pounds (25,000 sheets) of 44 x 56, 50 per cent rag lithograph finish map paper at 11.68 cents per pound. Bids for these items were received on November 1.

The Whitaker Paper Company will furnish 40,000 pounds (400,000 sheets) of No. 2, 24 x 36 folded kraft wrapping paper at 4.04 cents per pound, bids for which were received on October 30.

The Paper Corporation of the United States will furnish 172,500 pounds (3,000,000 sheets) of 21 x 32 white sulphite writing paper at 5.57 cents per pound and the R. P. Andrews Paper Company will furnish 115,000 pounds (1,000,000 sheets) of 32 x 42 yellow sulphite writing paper at 6.29 cents per pound. Barton, Duer & Koch Paper Company will furnish 8,755 pounds (50,000 sheets) of 25 per cent rag, 24 x 38 white ledger paper at 9.47 cents per pound and the same firm will also furnish 19,400 pounds (100,000 sheets) of 50 per cent rag single ply buff ledger paper at 11.19 cents per pound. The Paper Corporation of the United States will furnish 36,000 pounds (313,000 sheets) of 32 x 42, 50 per cent rag white bond paper at 10.9 cents per pound and the same firm will also furnish 20,000 pounds (312,000 sheets) of 24 x 38, 25 per cent rag, yellow bond paper at 9.05 cents per pound. The Whitaker Paper Company will furnish 24,400 pounds of 50 per cent rag white and yellow index paper at 11.86 and 11.19 cents per pound and Barton, Duer & Koch Company will furnish 5,000 pounds of same blue at 12.222 cents per pound. Bids for all of these items were received on October 28.

St. Regis Negotiates on Water Rates

TACOMA, Wash., November 16, 1935.—Conversion of the Kraft pulp plant of the St. Regis Kraft Company, formerly the Union Bag and Paper Company's property on the tideflats, into a bleached paper plant, for a long time reported under consideration as a means of reopening the big idle plant, has reached the point where the city water department is being asked for a revision of wholesale water rates for pulp making, Commissioner Ira S. Davisson disclosed at the City Council session recently.

Commissioner Davisson suggested that the St. Regis Kraft Company management be asked to send C. R. McMillen, its vice president, to Tacoma to discuss water rates, Commissioner Davisson indicating his belief that satisfactory adjustments can be made if the executive of the company can be here. Negotiations with W. W. Griffith, plant manager here, have gone as far as they can, Mr. Davisson stated. It would take more water for the type of mill being considered, it is understood. The plant formerly employed about 165 men.

Fort Frances Sets Production Record

A record run of 312 tons of newsprint for a period of 24 hours was made on November 6, 1935, at the mill of the Fort Frances Paper Company, according to the *Fort Frances Times*. This is an all-time record for the mill and incidentally 147 tons of this was made on No. 7 machine, thereby establishing a record for that machine, which is also believed to be a record for a 226-inch machine running at 1,100 feet per minute.

Emmet Anderson is superintendent of the Fort Frances mill.

Plan for Superintendents Meeting

KALAMAZOO, Mich., November 16, 1935—Otto F. Fisher, general chairman of the Michigan Division of the American Pulp and Paper Mill Superintendents Association; Al Sherwood, vice chairman; Norman Cowie, secretary; and Roy Zellers, of the French Paper Company, Niles, Mich., met recently with the local hotel men to make preliminary plans for the national convention which comes to Kalamazoo in June, 1936.

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DURIDE—innersoling material
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These products are manufactured by the use of aqueous dispersions of rubber and fiber mixtures under an exclusive license from the United States Rubber Company under the United States Patents listed below. Aqueous dispersions of rubber comprehend any form of rubber which is suspended in water.

1,497,146	1,825,422
1,500,500	1,756,035
1,600,047	1,765,774
1,567,646	1,773,201
1,675,959	1,839,996
1,843,581	

The trade is advised that infringements of the above patents will be vigorously prosecuted.

LATEX FIBER INDUSTRIES, INC.
BEAVER FALLS, N. Y.

"Gair Old Timers" Hold Annual Dinner

The "Gair Old Timers", an organization of present and former members of the Robert Gair Company, Inc. held their third annual dinner at the Hotel New Yorker recently. More than 160 men who are either present or past members of the Gair organization were brought together by the event, including some whose service with the company dates back as far as the 1870s. In addition to many who came from all sections of the East and Middle-West, there were messages from those at more remote points who were unable to be present, among them E. Victor Donaldson, president of the Gair Company, who was called to Toronto on business a day or two before the dinner and therefore was unable to be present.

Election of Officers

The "Gair Old Timers" annual dinner is a purely social function. This year the only address was an informal talk by George W. Gair, son of the company's founder and chairman of the board of the Robert Gair Company, Inc., in which he reminisced amusingly on past events in the Gair Company's history. The only business transacted was the election of officers for the ensuing year. Those elected were: Edward E. Seaver of the Robert Gair Company, Inc., Philadelphia, Pa., president; P. L. Andrews of P. L. Andrews Corp., vice-president; Louis Barbieri, Sterling Engraving Company, secretary; Frank E. Marston, 1878, honorary president.

Those Who Were Present

Among those who attended were: A. F. Aamold, Gair Cartons, Inc., Piermont, N. Y.; Harry D. Adriance, Queens Boro G. & E. Company; Edwin J. Bakewell, Gair Thames Containers, Inc., New London, Conn.; Simon Balkansky, Century Corrugated Supply, New London, Conn.; Clarence S. Barnes, W. W. Fitzhugh, Inc.; Arthur J. Bauser, Gair Company, N. Y.; Frank Block, Storch Truck Company; Arthur J. Brewster, Gair Thames Containers, Inc.; Richard F. Brickley, Arco Manifolding Company; Charles Burke, Bogota Paper and Board Corporation, Bogota, N. J.; Peter Burke, Gair Realty Corporation, Brooklyn, N. Y.; Elston S. Bush, Gair Cartons, Inc.; George T. Bush, Gair Cartons, Inc.; Albert W. Campbell, Arrow Engraving Company; R. L. Campbell, Gair Company, Philadelphia, Pa.; J. H. Cashman, J. H. Cashman, Inc.; William F. Cavanagh, Gair Cartons, Inc.; George Chagnon, Jr., Gair Thames Containers, Inc.; John A. Coakley, Gair Cartons, Inc.; F. Collins; H. V. Costigan, Brown & Bailey; Clyde G. Cottle, Gair Thames Containers, Inc.; Fred Coursen, Gair Cartons, Inc.; Charles L. Crowell, Gair Cartons, Inc.; E. H. Curtiss, Gair Cartons, Inc.; George DeClercq, Gair Cartons, Inc.; John Delaney, Latham Litho Company; William S. Delp; Bruce R. Devon, National Biscuit Company; Henry Ditzel, Zeese Wilkinson Company; F. F. Doll, W. W. Fitzhugh, Inc.; George H. Drake, Continental Container Company; Fred C. Drasses, Gair Cartons, Inc.; Oswald Duncan; F. J. Edgars; Theodore Eisner, National Biscuit Company; Carl Erickson; Sam Evans, Jr., Gair Cartons, Inc.; Leo Gilmartin, Gair Cartons, Inc.; William Glennon, Julius Goetz, International Folding Box Company; John J. Gormley, Eastern States Carton Corporation, Brooklyn, N. Y.; John Gray, Densen Banner Company; George Griesel, Gair Cartons, Inc.; C. T. Gritman, Gair Cartons, Inc.; Joseph Gruneisel, National Container Corporation; James Hall; D. B. Hassinger, D. B. Hassinger; William Hegermiller, A & P Tea Company; Oscar Hendrickson, D. L. & D. Corrugated Company; Camille Heyman, Gair Company, N. Y.; Charles Hoffman, P. L. Andrews Corporation; Henry Hoffman, P. L. Andrews Corporation; Gene Hogan, Stoddard Bell Electro Company, Inc.; W. F. Howell, Gair Company, N. Y.; John P. Hubmeir, Gair Realty Company; Harold Hughes, Parsons & Whittemore, Inc.; Forbes Hutcheon; Harvey Jackson; Charles Jaeger, Gair Cartons, Inc.; Otto W. Jommersbach, Grand City Container Corporation; Fred C. Jones, Bogota Paper and Board Corporation; Fred Kanzler, Fred Kanzler & Schwint Printing Company; Joseph Keating, Gair Company; Edward Kelly, National Biscuit Company; E. B. Kelly, E. B. Kelly Company, Inc.; Michael Kienzle, Gair Cartons, Inc.; Paul Lang, Continental Folding Box Company; Iver Larsen, Gair Realty Corporation; William Lassen, Robert Wilson Corporation; Edward Leddy, American Colortype Company; George J. Logan, Gair Company; Milton G. Love, Brooklyn Cooperage Company, Versailles, Conn.; Henry Luz, Strehl-Otens Company; William McConnin, Federal Carton Company; Frank McCormick, Gair Cartons, Inc.; Patrick McCormick, Gair Cartons, Inc.; James McCrea, Gair Cartons, Inc.; John F. McKenney, Atlantic Container Company; H. J. McPhilliamy, Gair Thames Containers, Inc.; J. H. MacIninch, Gair Thames Containers, Inc.; James Macksey, Gair Thames Containers, Inc.; J. D. Malcolmson, Gair Company, N. Y.; William Nagels; Otto Mann; John P. Markert, Continental Folding Box Company; Peter Marquette, E. W. Blatchford Company; John Martin, John Martin; Joseph F. Mertz, National Biscuit Company; Charles Mills, W. W. Fitzhugh, Inc.; J. Louis Neff, Medical Society, Nassau County; David J. Nogle, General Carton Company; Dennis O'Connor, Gair Cartons, Inc.; James O'Leary, George W. Swift; Jules Ostner, Densen Banner Company; John Pabst, Gair Cartons, Inc.; George Pauchner, Gair Realty Corporation; Charles Phoebus, W. W. Fitzhugh, Inc.; Henry W. Pupke, National Biscuit Company; Robert Quinn, Gair Cartons, Inc.; William H. Rathjen, Bogota Paper and Board Corporation; Larry Rawald, Gair Cartons, Inc.; Lester Reidell, Kirkman & Son; C. M. Reynolds, Bogota Paper and Board Corporation; Jack J. Roach; Thomas Roman, National Biscuit Company; A. Rossum, Continental Folding Box Company; Louis Roth, Gair Cartons, Inc.; Horace Rounds, National Container Corporation; Henry Rust, Gair Thames Containers, Inc.; Martin Schattner, Gair Cartons, Inc.; Frank

"GAIR OLD TIMERS."

Left to right, top row: F. G. Wasgatt, 1891; George W. Gair, 1886; Harry D. Adriance, 1879. Lower row: William W. Worrall, 1882; Edward E. Seaver, newly elected president of the "Gair Old Timers," 1904; and John P. Markert, 1878.

TENSILASTIC Rubber Rolls Have Correct MODULUS

A rubber roll can have high tensile, correct density, contain an anti-oxidant, and like Tensilastics be carefully made to fit the position in the machine, but—to get the amazingly long Tensilastic runs it must have something else. That something—correct Modulus—is the difference between Tensilastic and ordinary rubber rolls.

Modulus is the measure of elastic rebound—the ability to snap back to normal quickly after pressure. A roll that is slow to rebound soon becomes corrugated and distorted and—does a poor job. With such a roll, a brief machine shut-down results in a flat spot at the nip, which damages your felt when production is resumed.

Tensilastic has that live elasticity that prevents distortion and corrugation, assures better, longer service and longer felt life. It has correct Modulus.

Correct Modulus is not the whole answer to Tensilastic's exceptional performance, but it's one of the most important reasons.

Tensilastic is amazingly resistant to wear and abuse, to oxidation, to deterioration. It has the ability to maintain its tensile and uniform density long after ordinary rolls are ready for the discard.

These qualities, plus the fact that a Tensilastic is a tailor-made roll—made to fit the conditions under which it is to run, make it an outstanding roll. Each Tensilastic is laboratory planned and laboratory checked at every stage of processing. There is no guesswork about a Tensilastic rubber roll. We know what it will do in the position for which it is made.

Try Tensilastics—press, table, breast, couch, wire or carrier rolls—and prove for yourself the superiority of these rolls over ordinary rubber rolls.

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TENSILASTIC RUBBER ROLLS

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Schmidt, J. H. Matthews Company; E. Schroeder, Tower Magazine Inc.; John Schwint, Kanzler & Schwint Printing Company; Thomas Shannon, Shannon & Bailey Company; Leroy G. Shepard, Gair Cartons, Inc.; Alfred Smith, Gair Cartons, Inc.; Charles Smith, Gair Cartons, Inc.; Dan Smith, Gair Cartons, Inc.; Francis Smith, Gair Cartons, Inc.; Harry Smith, Bogota Paper and Board Corporation; Stanley Smith, Gair Cartons, Inc.; L. T. Somers, Norwich Union Indemnity Company; William C. Staiger; Christian Steidinger; Charles F. Stocker, Sweeney Litho Company; Fred Stocker, Atlantic Gummed Tape Company; Herbert Sunderland; Edward Thompson, Second District Magistrates Court; Abe Tockar; H. B. Van Antwerp, Sinclair & Valentine Company; H. Van Decker, Gair Cartons, Inc.; H. H. Ver Eecke, E. Vierira, General Carton Corporation; Fred Vetter, Gair Cartons, Inc.; George Wahlig, National Biscuit Company; Albert Ward, Gair Cartons, Inc.; F. G. Wasgatt, Gair Company; Alfred Weigand, Gair Company; William H. West, Gair Company; William Worrall; B. U. Wright, Specialty Converters; V. A. Young; Harry Youngs, Gair Cartons, Inc.; Frank Zima, Gair Cartons, Inc.; Edward Zeinscher, National Biscuit Company.

Petition Court on American Writing Taxes

HOLYOKE, Mass., November 19, 1935—The City of Holyoke has filed a petition with the United States District Court at Boston asking that an order be entered requiring the American Writing Paper Company, Inc., to pay the 1934 taxes which with interest amounts to $5,438. Tax Collector James M. Kennedy said in regard to it that the petition was a friendly one and that the city and the Company were in an understanding regarding the payment.

The expense bills of R. Frank McElwain in connection with his survey and appraisal of the plant amounting to $741 were approved. The expense bills of counsel amounting to $1505 have also been approved. The counsel for the company in the reorganization now before the Court comprises Larkin Rathbone and Perry of New York City, Warner Stackpole and Bradlee of Boston and Att'y Russell L. Davenport of Holyoke.

Central Ohio Paper Co. Expands

COLUMBUS, Ohio, November 18, 1935—The Central Ohio Paper Company is further expanding its converting plant which it has been developing for the past 15 years and is now setting up as a separate organization a unit known as the Paper and Envelope Converting Division of the Central Ohio Paper Company, offering a complete service in the manufacture and sales of unusual and special purpose papers and envelopes.

The new division will be under the direct supervision and charge of the vice president of the company, R. C. Williams, for many years an experienced manufacturer of envelopes and paper specialties.

Detroit Paper Products to Split Common

DETROIT, Mich., November 18, 1935.—Directors of Detroit Paper Products Corporation have voted to split four for one the company's 52,000 shares of common stock outstanding, subject to approval of the stockholders at a meeting to be held November 26. It is also planned to list the stock on the New York Curb Exchange.

Balance sheet as of September 30, 1935, carried capital stock at $282,631 and showed surplus of $232,871 after deducting the dividend payment up to that date.

Indianapolis Reports Improvement

INDIANAPOLIS, Ind., November 18, 1935—With an improvement in weather conditions, the local paper market responded with a slight increase in volume. Much cooler weather last week seemed to give the market more life, particularly in some lines. Local manufacturers and jobbers are predicting a gradual increase in business during the winter months. Right now most of the trade is beginning to think of contracts for the coming year. It is believed the securing of contracts will be somewhat easier than a year ago. At that time there was much concern about prices and long time contracts were almost negligible. Right now the price situation seems to be steadier than it has been at any time since the abolition of NRA. Many believed the entire price structure would crumble when the law was declared unconstitutional, but this has not been the case. For this reason, the larger buyers of paper are more confident in their buying than they have been for some months.

Production of paper boxes sank last week. This was the only adverse spot in the market, judging from reports of manufacturers and jobbers. Most of the local box makers had worked their force more than average preparing reserves against the Holiday demand. These reserves have been built up now and production has been curtailed until they have diminished. There has been a steady demand from holiday buyers, however, and it is believed that production will be stepped up sometime early in December. Warehouse stocks were built up higher this year than last, but demand is reported better.

The fine paper demand is reported average. Dealers in fine papers report a good holiday volume. There will be quite a bit of direct mail advertising produced during the next month for use both for Christmas and after the first of the year. Local printers seem to be figuring on quite a bit more work than they had this time a year ago.

Eckholm on "Dyestuffs"

The October issue of *Dyestuffs,* published by the National Aniline and Chemical Company, contains a very interesting article entitled "Dyes for Coloring Paper." The article is written by Mr. Ivar Eckholm, a member of TAPPI and is well worth the attention of paper men.

Copies of this bulletin may be obtained either through the PAPER TRADE JOURNAL or direct from the National Aniline & Chemical Company, 40 Rector Street, New York City.

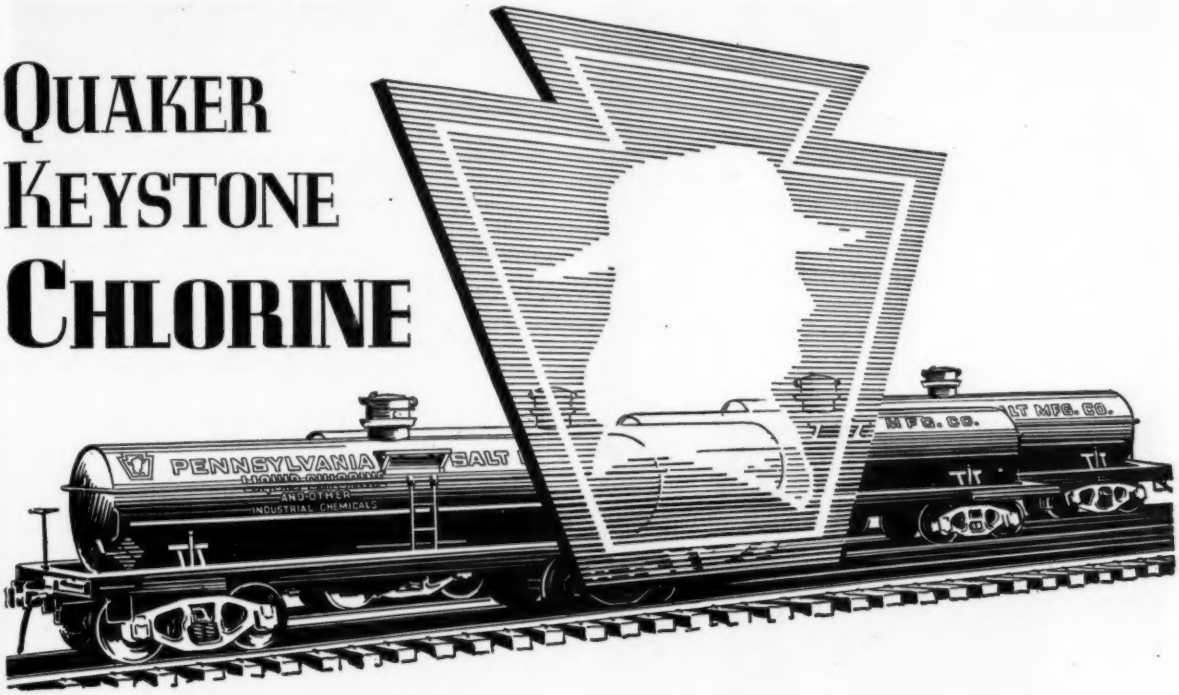
Correction

Victor Cohen, paper and paper products, 36-02 35th avenue, Long Island City, writes: "May we correct your statement in your last issue regarding news item of our connection with the Elk Paper Manufacturing Company. You state that Victor Cohen represented the various other concerns. Please be advised that the statement should have been 'Mr. Victor Cohen is representing or also represents, etc.'"

C. T. Elliott Joins Staff of A. N. Waring

Charles T. Elliott, Jr., formerly associated with the sales department of the Riegel Paper Corporation and later local representative of Elk Paper Manufacturing Company, has joined the sales staff of Arthur N. Waring, district sales manager of Fletcher Paper Company and Port Huron Sulphite and Paper Company, 424 Madison avenue, New York City.

QUAKER KEYSTONE CHLORINE



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Branch Sales Offices: New York—Chicago—St. Louis—Pittsburgh—Tacoma—Wyandotte

Obituary

Arthur C. Hall

BOSTON, Mass., November 18. 1935—The funeral services for Arthur Coburn Hall, aged 72, treasurer and general manager of John Carter & Co., Inc., whose death in St. Petersburg, Fla., last Tuesday was briefly mentioned in the PAPER TRADE JOURNAL last week, were held at the Methodist Church at Salem Deport, New Hampshire, today. Delegations from the New England Paper Merchants' Association, representatives of the National Paper Trade Association and the entire force of John Carter & Co., Inc., were present. The bearers, close business associates of Mr. Hall, were President A. P. Carter; Catano Fratus, an employee of the company 56 years; R. B. Pierpont, E. H. Little, Leon M. Poore and H. B. Harwood. Brief services were held at St. Petersburg Saturday morning.

Photo by Bachrach
ARTHUR C. HALL

Mr. Hall had motored to St. Petersburg with his wife a few weeks ago, expecting to return last week. The announcement of his death was a great surprise to relatives, friends and business associates.

Born at Salem, New Hampshire, February 28, 1863, Mr. Hall attended the local schools and the English High and Bryant and Stratton schools in Boston, his parents residing here during the winters. He first entered the employ of John Carter & Co. in 1882, later engaging in the manufacture of shoes for a few years. Returning to the John Carter Company in 1903 as assistant treasurer, he became treasurer and general manager on the death of John Carter in 1908. With his deep sense of business integrity and untiring effort, he guided the corporation into the high place it holds today in the fine paper industry. A fully informed paper merchant, with a real interest in the success of customers of his company, he had the respect of fellow merchants and the confidence of the paper consumers of New England.

Mr. Hall had retained his home in Salem, living in his summer residence at Connecticut Lakes during the vacation period and at Reading, Mass., during the winters.

He is survived by his widow, Mrs. Lucretia (Ward) Hall; a daughter, Mrs. Marion H. Chandler; two grandchildren, Arthur Hall Chandler and Frances M. Chandler, of 28 Howard Street, Reading, and two brothers, Judge L. Wallace Hall, of Salem, New Hampshire, and Clifton S. Hall, manager of the envelope department of John Carter & Co., Inc.

Leroy J. Vanderberg

[FROM OUR REGULAR CORRESPONDENT]

KALAMAZOO, Mich., November 16, 1935—Leroy J. Vanderberg was instantly killed near Glens Falls, New York, on Saturday, November 9, when his car was involved in a wreck. Mr. Vanderberg was born in Kalamazoo on September 7, 1893, his parents being Abram and Gertie Vanderberg. His mother died in 1908. He was a resident of Battle Creek, Mich., from 1911 to 1915 where on July 2, 1914, he was married to Mildred Doyle of that city. Six children were born to them, all of whom are living. Mrs. Vanderberg passed away in 1932.

Mr. Vanderberg lived in Groveton, New Hampshire, for several years, being in the employ of the Groveton Paper Company; came back to Battle Creek and for several years was traveling representative for the Beecher Peck and Lewis Company of Detroit and later for the Graham Paper Company of Chicago. Later moved to Chicago and was associated with the Seibert Paper Company as salesman. After Mrs. Vanderberg's death he came back to Kalamazoo. At the time of his death he was a traveling salesman for the McCluskey Wire Company.

Mr. Vanderberg was beset with considerably more grief in the last years of his life than is ordinarily suffered by any individual, but in spite of this fact, his cheery disposition predominated and his ability to smile in the face of the difficulties he encountered won for him a host of friends who mourn his untimely passing. Funeral services were held at the Joldersma-Klein funeral home, the Rev. J. A. Veldman officiating. Interment at Battle Creek, Michigan.

David E. Reese

APPLETON, Wis., November 18, 1935—David E. Reese, for many years secretary of the Combined Locks Paper Company, Appleton, Wis., died November 13 at the home of his daughter, Mrs. G. W. Moody, Weyauwega, Wis. He had been a resident of Appleton for 57 years, and was 80 years of age.

Mr. Reese in the earlier days organized the Weyauwega Milling Company and the Weyauwega Electric Light Company of Weyauwega, Wis., and after retiring from these companies became associated with the Combined Locks mill. He retired from active service five years ago. He was also secretary of the Green Bay and Mississippi Canal Company, which operates the water power dams of the Fox River Valley.

Mr. Reese was prominent in the Masonic and Elk Lodges, and a member of the Congregational Church. His wife preceded him in death a month ago.

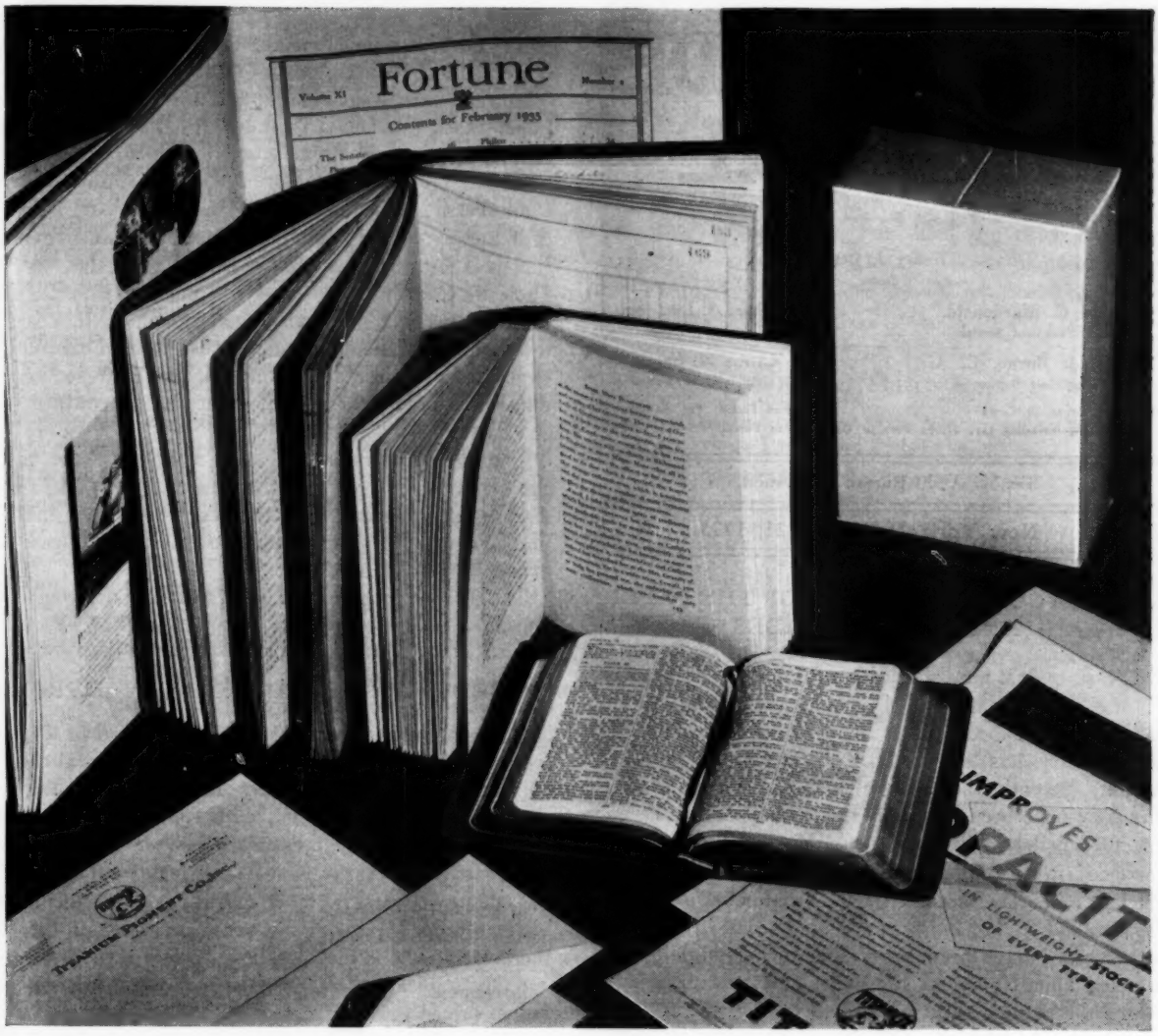
Funeral services were held at Appleton, and burial took place in Oak Hill Cemetery, Neenah, Wis. Mr. Reese was born at Neenah, March 14, 1855.

Joseph Tatnall Lea

Joseph Tatnall Lea, Sr., president of the E. M. Sergeant Pulp and Chemical Company, of New York, died November 12 in Orange Memorial Hospital, following an illness of five weeks. He was 59 years old.

Born in the Spuyten Duyvil section of New York, Mr. Lea entered the employ of the Lea Milling Company of Brandywine, Del. About twenty-five years ago he became connected with the New York concern. He had been president for many years.

Mr. Lea was active in church affairs and was one of the founders of the Glenwood Tennis Club of East Orange. Surviving are his widow; a son, J. T. Lea, Jr.; a daughter, Miss Nancy Lea, all of East Orange; two brothers and three sisters.



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LOCKWOOD'S DIRECTORY OF THE PAPER AND ALLIED TRADES

The sixty-first annual edition of Lockwood's Directory of the Paper and Allied Trades has been recently delivered to subscribers. In spite of the fact, that the industry has shown little expansion in productive capacity, recently the changes in the Mill Section of the directory have been unusually numerous. A greater number of smaller mills than usual during the year have changed owernship, a considerable number of the less efficient mills have become inactive and some of the temporarily idle mills have resumed operations. The changes in personnel have been heavy and owing doubtless to a growing appreciation of the value of modernization, the changes in equipment have rarely been so great in a single year.

The department of the directory devoted to mill equipment and supplies which was started a few years ago shows a healthful growth and demonstrates that this department meets an important need of the industry. This section furnishes a ready and convenient reference to the many varieties of machinery and supplies that are required in the operation of pulp and paper mills. All manufacturers of such equipment and supplies are eligible to listing without any expense. The work of gathering these listings is an arduous one and it is appreciated that some concerns who are eligible to listing may be omitted. If such individuals or concerns will inform the publisher, the omission will be cheerfully corrected.

In the section of Paper Specialities an alphabetical list of manufacturers making such goods has been added at the end of the section. This furnishes a handy list of paper converters for persons having use for such a list. An alphabetical list of the pulp and paper mills also is furnished in the index to the mills. By referring to the index all the mills of a concern having more than one mill may be easily ascertained.

Many changes have been made in all the other sections of the Directory including the Classified List of Pulp and Paper Mill Products, Glazed, Coated Paper and Board Manufacturers, Rag and Paper Stock Dealers, Rags and Paper Stock Consumed by the Mills, General Paper Merchants, Paper Box Manufacturers, Paper Bag Manufacturers, Envelope Manufacturers, Papeterie Manufacturers, Pulp Testing Chemists, Office Addresses of Mills and Mill Supply Houses and the Watermarks and Brands.

New subscribers especially should remember that the Table of Contents on page 4 will make it easy for them to find any section of the book in which they are interested. They should remember also to read carefully the explanatory matter at the heading of each section. By doing this points that might otherwise be confusing will be clear.

The directory is issued in two editions, the regular edition of 1156 pages, and the Travelers' edition of about 250 pages, including only the pulp and paper mill section. The cost of each edition is $7.50 or $7.00, cash with order.

The directory may be ordered from the Lockwood Trade Journal Company, 15 East 47th street, New York.

PAPER INDUSTRY CONSTANTLY IMPROVES

The contracted conditions which developed in the paper industry, following the peaks that were touched in 1929, evidently have been definitely arrested. Since the early summer of 1933 the trend, with some minor variations, has been consistently upward. While the second quarter of the current year was less satisfactory than the first one, due to adverse weather conditions, demand has been widening since July, giving some divisions of the trade the largest volume that has been booked in five years. Of special significance has been the broadening movement of higher-priced grades.

Distribution of paper during the first ten months of 1935 was larger by approximately 20 per cent than in 1934, with the gain representing tonnage moved, as prices practically were steady at last year's level. Profit margins, however, were narrowed by the rising production costs and the mounting tax payments. Both employment and pay rolls have been expanding during the year, as production has run ahead of that of 1934 by an average of 15 per cent, with the wrapping paper division exceeding the average. Production of newsprint definitely has turned upward, although at a slower rate.

It is the general consensus that next year will see at least a beginning toward the much-needed price increase in most divisions of the industry. Inventories already are being accumulated by wholesalers in anticipation of such advances. The new uses for paper and paper products, which constantly are being devised, together with the steadily rising purchasing power, are being counted upon to strengthen conditions and to push the volume of sales more rapidly upward during 1936, according to a survey of the paper industry, which has just been completed by Dun & Bradstreet, Inc.

The recovery in orders for paper, which gathered momentum as the third quarter advanced, enabled most manufacturers to advance their schedules from the level that obtained during the second three months. By the end of October, mills were operating at an average of 75 per cent of capacity, with some of the kraft and board units at 85. This compared with an average of 65 per cent in 1934. Based on the orders already booked, manufacturers estimate output for 1935 at 8 to 15 per cent in excess of the 1934 total, with the gain in the wrapping paper division running to about 20 per cent.

While newsprint definitely is on the up-grade, the rise has been at a slow rate, with the chief support given by the Canadian mills. Output in the latter for October set an all-time high at 266,515 tons, exceeding the previous record reached in November, 1929, at 252,046 tons. While production in the United States in October rose to 79,746 tons from 71,416 in September, it was smaller than in October, 1934, by 826 tons. In spite of the October increase the ten-month total for the United States was under 1934 by 6.4 per cent.

The combined production of Canada and the United States for October, however, rose to 346,261 tons, the largest total for any month since May, 1930, when it was 355,774 tons. This brought the output for the ten months of 1935 up to 3,006,108 tons, which exceeded all comparative figures back to 1930. It was 6.1 per cent smaller than in the latter year, but 21.9 per cent larger than in 1932, and 24.5 and 2.7 per cent, respectively, above the 1933 and 1934 totals. From the peak year 1929, it was off 11.7 per cent.

Improvement in general paper sales has been almost uninterrupted this year, despite the recession which occurred in some divisions during the second quarter. As a whole, sales for the ten months of 1935 exceeded those of the comparative 1934 period by 10 to 15 per cent, with the gain for the country ranging from 5 to 25 per cent. A number of concerns reported volume approaching the 1929 peak. The increase in unit turnover was larger than that in dollar volume, due to the steady price level.

To the higher rate of industrial operations, the widening retail distribution, and the increased outlays for advertising, the rising sales volume was attributed. Wrapping and package papers contributed heavily to the enlarged total, followed by bond, book, envelopes, bags, and builders' paper. Buying of Christmas requirements of wrapping paper, twine, bags, and set-up boxes has, in many instances, run nearly to the proportions booked for the holiday season in 1929, with better qualities selected than in the last five years.

Manufacturers report prices steadier than at any time during the past five years, with firmness extending to nearly all grades. Wholesale prices, on the other hand, have been somewhat irregular, but there has been an absence of any wide fluctuation in the level, which is at about the same position obtaining at this time last year.

Quotations on both fine and coarse paper have been steady, with kraft and board strong, because of the small supply of raw materials. Competitive conditions have been largely responsible for the irregularities in fine and print papers and the weakness in sulphite bonds. In most branches upward revisions are expected early next year.

The price of newsprint has been unchanged at $40 a ton since April, 1933, when it was lowered from $45. Attempts to raise it by $2.50 a ton for the first half of 1935 were unsuccessful. For 1936 the price has been set at $41 a ton, even though Canadian mills had hoped to get from $42.50 to $45, as production costs have risen nearly $3 a ton.

Production Ratio Report

(The statistics are based upon paper production reports to the American Paper and Pulp Association.)

COMPARATIVE MONTHLY SUMMARIES

1935	Total Production Ratio	1934	Total Production Ratio
January	65.8%	January	...
February	70.0	February	...
March	70.5	March	...
April	70.0	April	...
May	69.4	May	...
June	72.3	June	...
July (b)	67.8	July	...
August	70.9	August	...
September (c)	75.0	September (c)	59.4%
October	...	October	64.7
November	...	November	61.7
December	...	December (a)	62.1

COMPARATIVE WEEKLY SUMMARIES

CURRENT WEEKS, 1935		CORRESPONDING WEEKS, 1934	
* October 5	75.2%	October 6	65.2%
* October 12	76.3	October 13	64.3
* October 19	75.1	October 20	66.1
* October 26	76.6	October 27	63.5
* November 2	75.9	November 3	64.4
* November 9	73.6	November 10	62.1

The following statistics show the number of mills reporting by ratio groups:

NUMBER OF MILLS REPORTING, CURRENT WEEKS

Ratio Limits	October 5 1935	October 12 1935	October 19 1935	October 26 1935	November 2 1935	November 9 1935
0% to 50%	98	85	91	74	83	66
51% to 100%	247	260	250	259	247	181
Total mills reporting	345	345	341	333	330	247

* Subject to revision until all reports are received.
These data exclude (a)—Christmas Day, (b)—Fourth of July, (c)—Labor Day.

PAPERBOARD OPERATING RATIOS

According to reports from the National Paperboard Association per cents of operation, based on "Inch-Hours" were as follows:

1934		1935		1935		1935	
September	62%	January	61%	May	61%	Sept. 7, 1935	61%
October	63	February	67	June	65	Sept. 14, 1935	72
November	56	March	67	July	59	Sept. 21, 1935	71
December	53	April	61	August	65	Sept. 28, 1935	75
Week ending Oct. 5, 1935		75%		Week ending Oct. 26, 1935			78%
Week ending Oct. 12, 1935		76		Week ending Nov. 2, 1935			76
Week ending Oct. 19, 1935		75		Week ending Nov. 9, 1935			75

May Build Mill on Vancouver Island

[FROM OUR REGULAR CORRESPONDENT]

VANCOUVER, B. C., November 16, 1935—Active steps are now being taken in connection with a proposed mill on Vancouver Island, B. C., for production of paper and rayon silk. A crew of eight men, in charge of W. M. Meehan, are at present on the Island surveying available waterpower and possible sites for the proposed mill. J. P. Meehan and associates have nearly 8,000,000 feet of hemlock in vast holdings in British Columbia. Mr. Meehan, who is the Vancouver representative of United States interests advancing the project, declares that this wood is the best available for manufacture of rayon pulp. Squamish has been considered for the site of the proposed development, although no definite announcement has as yet been made.

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Section of the
Technical Association of the Pulp and Paper Industry
Edited by Ronald G. Macdonald, Secretary

Sulphate Pulp Quality Control—Sampling and Testing of Individual Digester Cooks*

By Carl Fahlstrom[1]

The method of controlling pulp quality at the Longview Fibre Company has been, and still is, as follows:

Continuous samples of screened stock are collected for sixty minute periods by means of an automatic sampler, which in turn are quartered down and collected by a tester and saved for a six hour period. The following tests are then run on the sample, which represents about three cooks: The regular strength test is made using a one and one-half pound Valley Niagara Laboratory Beater with controlled bed plate; freeness tests are made on the beaten stock at thirty and fifty minute beating intervals; permanganate number is determined and shive count on permanganate bleached pulp. The results are plotted on a chart and by observing the trend of the various curves, we are able to make any neccessary changes in digester operation before the pulp has changed its characteristics too greatly.

We have always felt that we should try to develop some rapid, simple test which could be applied either to a liquor sample taken directly from the digester during the cooking action, or else a pulp sample blown shortly before the cooking cycle was complete, either test to show how far the action had progressed and how much longer it would be necessary to continue the cooking action in order to obtain the type of plup we wanted. Having been unable to work out either method to a point where we could see any advantage to it, we decided to sample the pulp while it was being blown into the diffuser, test it for degree of cooking by means of the permanganate test, and from this result determine what should be done to the next cook, thus hoping to vary conditions enough, when necessary, to hold the permanganate number within definite specified limits.

To Promote Discussion

It is this part of our routine which I wish to explain at this time, with the thought in mind that it may start some discussion, and in that way prove of some worth to all of us concerned.

Each digester has a sample line, midway between the top and bottom, which is used to take samples for the cook's guidance in timing the end point of the cook. We tested some of the samples which were taken at this point but found them to vary so much that no credence could be given the results obtained. We then placed a sampling pipe in the blow line which connects the bottom of the digester to the diffusers. This sampling point was located in a long sweep ell which is at the highest point of the blow line about twenty feet from where the blow line enters the diffuser. The ell was tapped at a point approximately equidistant from the flanges and very close to the short radius, for a one-half inch extra heavy pipe nipple, which in turn had a full opening ball type valve screwed on to it.

For our first sampling trial we put a five gallon bucket in place, opened the valve, and then discharged the digester. Liquor and stock flew about but the sampling point worked satisfactorily. We then built a small diffuser out of a 16 inch piece of pipe, with a perforated false bottom in it to allow the black liquor to drain away during the sample collection time, and to wash the pulp sample on later. The one-half inch pipe line was run tangentially into the diffuser near the top. Spray nozzles were placed inside the diffuser at points so that during washing, the stock was kept from forming a heavy mat on the false bottom, thus speeding up the washing a great deal. The door was swung on hinges and had bolts with wing nuts for tightening, making it very simple and quick to open or close the door.

The second digester helper is given the responsibility of checking the piping for plugs, opening the valve before a blow, washing the stock, collecting a large ball of stock from the sample and sending it to the control laboratory for testing. It takes five minutes to wash and collect the sample and another fifteen minutes to run the permanganate number and get the results back to the digester room, so that within twenty-five minutes from the time the digester is blown, the cook knows exactly the condition of the resulting stock.

Gives Representative Sample

The one-half inch sampling line gives a representative sample, from the whole digester, of between two and three pounds air dry pulp, and also approximately four gallons of black liquor which can be used for various tests. These quantities are ample for any and all tests to be run.

To date our procedure for testing this pulp has been to run a permanganate number and shive count on the

* Presented at the Fall Meeting of Pacific Section of TAPPI, Seattle, Wash., October 25-26, 1935.
[1] Assoc. Member of TAPPI, Chemist, Longview Fibre Company, Longview, Wash.

bleached pulp. For permanganate number we use the method as described by R. H. Wiles in Technical Association Papers of 1934, and find that it is very simple and quick and gives results which can be reproduced by different operators.

The ball of pulp is received at the control testing station where the operator gives it a final wash with mill supply water, on a Buchner funnel; presses the pad formed, between felts, on a hydraulic press at very specific conditions as to time and pressure, and finally weighs out two duplicate samples. One sample is used for the permanganate number and the other is oven dried to determine the weight used.

Specifications for Allowable Variation

Specifications have been set up for allowable variation in test conditions as follows: Weight ± 5%; temperature of reaction ± 1° C.; reaction time exactly five minutes. Four different operators are running these tests and are able to check each other within ± 2 per cent on identical samples, which is accurate enough for the control we wish. Upon completion of this test the diluted stock is formed into a pad by filtering through a Buchner funnel, using a piece of felt for filtering medium, pressed, and sheet removed and examined for shives which have not been bleached. Very few of the samples show any sign of shives. The only reason we can give for this shiveless pulp is due to blowing through the one-half inch line into the small diffuser. This is a fortunate circumstance because it eliminates screening the sample before testing, which would be absolutely necessary in order to get reliable results.

How the Method Has Worked

This method of sampling and testing the sample of pulp from the blow line was started on August 16 on the pulp from two digesters, or approximately one-half the production, and has worked out as follows to date:

The blow line sampler functions correctly at least ninety-five percent of the time; the other five percent of the time a knot or uncooked, oversize chip will foul the one-half inch pipe causing a plug up.

The sample of stock is washed clean enough in five minutes to take the required ball of stock out of the small diffuser.

The laboratory tester is able to get the result of the permanganate test (uncorrected) back to the digester cook within twenty minutes. The corrected results take an hour to determine because of the necessity of getting bone dry weight. This time can be shortened considerably by installing better drying equipment. The average correction to date has been ± 3 per cent because of sample weight.

The digester cooks are enthusiastic over this test because it gives them a very definite end point to work to.

Specifications for permanganate number on blow line samples have been set up with a ± 3.5 per cent tolerance. For the first two weeks we found only 10 to 20 percent of the total cooks made were within this tolerance. Now we are averaging between 50 and 60 percent within the tolerance, and the trend of the curve is very definitely on the up grade.

We have changed the grade of pulp three times and each time were able to obtain the desired results within a very short period of time, where formerly we spent at least sixteen hours and sometimes longer before we had the grade of pulping coming over the deckers which was required.

The permanganate number of the blow line sample checks the permanganate number of the sample, collected by the continuous sampler, at the deckers, to a degree which is practically within the limits of accuracy of the permanganate number as determined by different operators. So far we have found a ± 3 per cent variation in the permanganate numbers, with the blow line sample usually running slightly higher than the decker sample. The decker sample is tested in one control station by the pulp testers, while the blow line sample is tested in another station by the ground wood testers.

Explicit Instructions To Be Set Up

We are now satisfied that the sampler and method of taking the blow line sample are sound, and we are therefore installing another one which will enable us to sample all the cooks made. As soon as we have gained more definite knowledge as to just how close we can control our pulping operation, we contemplate setting up very explicit instructions for the controlling of the digesters, thereby eliminating the human element as much as possible in determining whether the contents of the digester are ready to be blown or not.

We believe that we can set up a definite time curve for the complete digester cycle so that all cooks will be handled exactly alike, and the permanganate number, with possibly another test, will be the controlling factor as to whether a change in the percentage of active chemical is necessary in order to take care of variations which occur in the chips charged to the digester.

At a later date, when we have had the opportunity to check the above assumptions, we shall be able to give definite figures as to what the results are.

Kalamazoo TAPPI Visits Ann Arbor

The Kalamazoo Valley Section of the Technical Association of the Pulp and Paper Industry met on November 15th and 16th at the University of Michigan, Ann Arbor, Mich., and was attended by about 70 mill men from Michigan paper companies.

Registration was held at the East Engineering Building at the University on Friday after which there were visits to the laboratories. Luncheon followed at the Michigan Union. The program for the afternoon over which Chairman H. M. Annis presided included the following papers: "Power Steam and Air Conditioning for the Paper Industry," by Prof. R. S. Hawley of the Department of Mechanical Engineering; "Present and Prospective Wood Supplies in Michigan as Related to the Pulp and Paper Industry," by Prof. W. F. Ramsdell of the School of Forestry; "Application of Drying Theory to Paper Drying," by Prof. D. W. McCready of the Department of Chemical Engineering. The program was concluded by a banquet in the evening over which Prof. H. C. Sadler, Dean of the College of Engineering, presided.

A presentation address of the laboratories to the University by R. A. Hayward, Vice President, Kalamazoo Vegetable Parchment Company, Kalamazoo, was given. Dean C. S. Yoakum, Vice President of the University, gave the acceptance address and then Prof. A. H. White, Head of the Department of Chemical Engineering, talked on "Paper Research at Michigan." Prof. A. E. White, Head of the Department of Engineering Research, talked on "Applied Research at the University of Michigan."

On Saturday morning there were visits to the laboratories and points of interest in the University. After lunch practically all attended the football game (Michigan vs. Minnesota).

The Nature of Cellulose

A Historical Review

By E. Heuser[1]

Chapter I. The Molecular Structure

An old French saying is "On retourne toujours à son premier amour." This somewhat freely applied to the chemical constitution of cellulose means that those of the investigators who were in love with the chain structure of cellulose, such as or similar to the well-known formula of Tollens, but had abandoned it for various reasons, have now returned to it. Ruefully, one may say, for the rather speculative period which about 15 years ago started a new era of cellulose research, although attractive in many ways, led us somewhat astray, while we should have maintained more scientific cold-bloodedness.

However, the indulgence in this speculation was no loss, since there was behind it a vast amount of experimental data, which, now seen in another light, can be utilized to support the modern concept of the cellulose structure. We have learned a great number of things, and, after all, it appears as if it was our destiny to go through these various phases in order to land so much surer on the solid ground on which I feel we now stand.

In order to arrive at a better understanding of our present conception on the chemical structure of cellulose it appears interesting enough to review the past history from the viewpoints indicated above.

At the time cellulose research received its new impulse, the following four facts were known:

1. The product of hydrolysis is glucose.
2. Acetolysis renders cellobiose.
3. There are probably not more than three hydroxyls which react as in alcoholic groups.
4. There is little indication of the existence of a free aldehyde group.

Since no other products of hydrolysis had been found, the first two facts justified the definition of cellulose as a polysaccharide built up from single mono- or di-saccharides. Trained in the classical school of tackling problems of chemical constitution it was only natural and logical for Tollens that he thought the glucose anhydrides as being linked together in accordance with the principle of polymerisation in its original meaning, that is by condensation of glucose units under loss of water. Logical and natural also that he arranged the units in a chain. The amorphous nature of the cellulose, its insolubility and other properties placed it in the class of substances of high molecular weight. *(Fig. 1).*

Tollens had established his hypothetical chain formula

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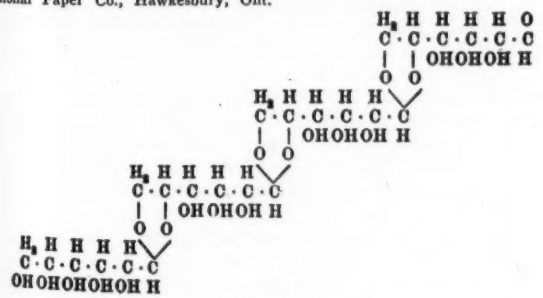


FIG. 1
Cellulose formula. (Tollens).

about 1895 *(1)*. He also had a very distinct concept of the way in which the single units were linked together, that is, the carbonyl group of the one glucose being connected with Nos. 5 and 6 hydroxyl of the other—the so-called double oxygen linking with which he explains the particular physical properties of cellulose. Thus, the only thing for the following generation to do was to deliver experimental proof for Tollens' formula and not to bother too much about the high-molecular nature. This statement may cause my audience to call me a pedantical schoolmaster. This you may do. However much truth may be behind this statement, I would like you to accept it for the moment as a means of showing how the development would have proceeded if it had not been interrupted by the numerous excursions into the field of speculation about the nature of high-molecular substances.

Assuming that the hydrolysis of cellulose rendered 100 per cent glucose, so that this monose was the end product of the process, the problem was to lead the hydrolysis in such a way as to isolate the oligosaccharides whose possible formation Tollens' formula suggested. The more so, since the next higher link to glucose, the cellobiose, had been found already, and moreover, since it was known that nature produces tri- and tetrasaccharides and that some even had been synthesized at that time. Had the cellulose chemists succeeded in identifying the so-called "cellulose dextrines" as a mixture of cellotriose, cellotetrose, pentose, hexose, with still higher members, the road would have been opened to answer the next question, namely as to how in these obligo-saccharides the glucose units were linked together. For answering this question the actually isolated cellobiose would already have delivered an excellent material of investigation, the more so since the mode of linking between glucose molecules in other disaccharides was known to be of the glucosidic nature. The third question then would have been: Are the linkings in the cellulose itself always the same or do different linkings alternate?

Thus there were quite a number of problems open to answer, namely that of the length of the chain, i. e., how many glucose residues unite to form the cellulose molecule and finally how many molecules unite to form the micella.

Such probably would have been the way which structural chemistry would have taken if the generation of Tollens' had continued to interest themselves in this problem. However, for about 20 years very little happened except that a number of other formulae were proposed for which, however, no new facts were available. The only constitutionally important result may be seen in the more firmly established postulation that any celulose formula must have only three esterifiable hydroxyls. This was the outcome particularly of Ost's indefatigable studies on the acetylation of cellulose. In reality the new formulae, as for instance that suggested by Vignon and later by Green, are only the result of a more or less unfounded speculation on the possible arrangement of the atoms in the glucose anhydride. Besides they do not explain the formation of cellobiose.

It is strange that such speculations were not replaced by experimentation at a time when Emil Fischer, the great experimenter, was leading the sugar chemistry and

later that of the proteins through his school, which was so averse towards any speculation, from climax to climax. If we shall believe *K. Freudenberg (2)*, Emil Fischer was of the opinion that cellulose and starch "were not yet ripe" for going into the nature of their chemical constitution. It appears as if this, his opinion, actually kept investigators away since it was only one or two years after his death, which occurred in 1919, that cellulose became the subject of new interest.

From that time on we find research to move chiefly in two directions. In the one it follows the solid and secure paths which for a long time had been established for the investigation of problems pertaining to the chemical constitution of matter and which had so successfully enlightened us on the chemical structure of many natural products. As for the other direction, research leaves the solid ground of approved principles and enters the realm of speculation on the size of the cellulose molecule trying to explain its nature as that of a high-molecular substance by means of a concept entirely new in the field of polysaccharide chemistry.

Roentgenography, although at its start nourishing such speculation, yet chiefly tried to bring its findings into accordance with the unshaken concept of chemical constitution, and the more evidence of its usefulness the latter produced the more did X-ray evaluation purge itself from premature and far too vague conclusions. Thus, X-ray investigation, although limited as to what it can tell us about the chemical side, has given much support to our concept of the chemical structure of cellulose and other natural products as we have it today.

Before research started to follow these two directions and when X-ray investigation had just produced its first findings on the crystalline structure of high molecular substances, a new formula was offered to the cellulose chemists in 1920 by C. Hess *(3)*. His formula, a penta-glucosido-glucose, based on the then prevailing ideas on the structure of tannic substances, represented a hexasaccharide in which five glucose units were linked, by means of glucoside linkings, with the five hydroxyls of another glucose unit. Although this formula was entirely of a speculative nature it maintains its importance in cellulose history for having awakened a number of investigators to activity and thus having ended the long and rather fruitless period, which lies between Tollens' formula and Emil Fischer's passing.

It was this point, that Hess' formula would account only for a yield of 32-33 per cent cellobiose and thus was not in agreement with the fact of a 40 per cent yield actually obtained, which caused Karrer *(4)* and Freudenberg *(5)*, independently of each other, to study anew the acetolysis of cellulose.

Freudenberg *(5)* found that not only 40 but 61 per cent of cellobiose are formed and that these 61 per cent could be isolated if it were not for about 20 per cent which are lost again by destruction. A calculation based on a chain length of 100 glucose units revealed that the probably highest amount which could exist in the mixture after acetolysis is 67 per cent. While thus the penta-glucosido-glucose formula was not in agreement with one of the most important facts, the results of the acetolysis pointed in the direction of a long chain, i. e., the principle put forward in Tollens' suggestion.

At about the same time the method of total methylation and hydrolysis of the methylated products as applied by Irvine, by Haworth, and by Karrer and their collaborators, though still at its beginning, already proved an excellent means of information on structural problems.

But the interesting results which thus (and somewhat later also from the use of phosphorpentabromide by Karrer) were produced on the probable structure of maltose, cellobiose, and other disaccharides *(6)*, were overshadowed by the endeavors to find another explanation for the high-molecular state of natural products than previously had existed. These endeavors can be traced back to Cross and Bevan *(7)*, the pioneers in the cellulose field, who expressed the opinion that cellulose may be an aggregation of units different from ordinary molecules, but the issue was started anew by the same formula, which brought those investigators to the fore, who did not see any necessity of changing the classical concept of chemical structure in the case of highly polymeric substances.

With his formula Hess had at the same time offered the suggestion that the cellulose molecule is represented by a number of hexasaccharide units kept together by means of "residual forces of affinity." This idea, possibly influenced by Werner's co-ordination theory on the nature of complex molecules, although or because being a deviation from the heretofore accepted meaning of polymerisation, appeared for many a welcome possibility of widening their knowledge in this respect. From then on (it was the year 1920), the idea of the small units, held together by forces other than normal valencies, gains much headway.

With the penta-glucoside-glucose formula abandoned, the new idea was transferred to the anhydrides of glucose and of cellobiose, either of which was then assumed to be the possible "building unit" of cellulose. Thus, Karrer *(8)*, in 1921, expressed the strong belief that the anhydroglucoses in starch as well as in cellulose are held together by means of "secondary bonds" and that here polymerisation does not cause structural changes as would be the opening of oxygen linkings.

For Karrer the building unit of cellulose was the anhydro-cellobiose, and the exponent of polymerisation (degree of polymerisation), deducted from the heat of combustion of starch and from a general analogy with starch, was thought to be not greater than three, probably two.

Thus, Karrer considered the cellulose molecule to be a dimeric cellobiose anhydride $(C_{12}H_{20}O_{10})_2$. This formula denies the possibility that hydrolysis renders other oligosaccharides but the one, namely cellobiose, a postulation which was in agreement with Karrer's strict refusal of any chain structure.

That the cellulose molecule should be represented by only two cellobiose anhydrides held together by secondary valencies, instead of hundreds or more of such molecules linked together by means of normal valencies, certainly was a daring step, even in the memorable year 1921, when the first results of X-ray investigation were thought not to be in disagreement with the conception of the small units. Herzog and Jancke *(9)* had found that the group $(C_6H_{10}O_5)_4$ repeated itself regularly within the space lattice of the cellulose fibre gained from monochromatic X-radiation, a result which was welcomed by Karrer as being in good agreement with his conception. This shows that at that time X-ray possibilities were much overestimated, the elementary unit of the crystal was confounded with the molecule.

Still further than Karrer went Hess when he claimed that the cellulose molecule is monomeric, i. e., is represented by a single glucose anhydride. As such it was and apparently still is assumed by Hess *(10)* to exist in solution, for instance in cuprammonium or, as was claimed a few years later (1926 and the following years), in form of derivatives as acetyl- and methyl-cellulose in their respective solutions. In its solid form, also in that brought about by regeneration from solution, cellulose then represents an association of monomeric glucose anhydrides, and such an association is held together by secondary valen-

cies. Association was thus substituted for polymerisation, which means that the latter's principle as the outcome of a chemical process was abandoned.

In Karrer's cellulose structure representing a dimeric anhydrocellobiose the two anhydrocellobiose units are thought to hold together by secondary valencies, and a great number of the dimeric molecules are thought to be united by means of "crystal" valencies to build up the cellulose itself. Depolymerisation then would force to open firstly the crystal valencies, and single cellulose molecules would result. The next step would be the breaking up of the secondary bonds, and single anhydrocellobiose molecules would result. On hydrolysis these would render cellobiose and further, glucose. Although the opinion was expressed that with cellulose depolymerisation can scarcely occur without hydrolysis at the same time *(11)*, it was Hess who claimed to have obtained (by means of acetyl chloride) an anhydrobiose as a monomeric individual—a claim which seemed to receive much support by the isolation of another anhydrobiose which was claimed by Bergmann and Kneho *(13)* (1925).

In case the cellulose molecule were thought to be represented by an anhydroglucose, depolymerisation would go the same way, thus rendering single glucose anhydrides before hydrolysis would convert the latter into glucose. Hess thus considered a solution of cellulose to contain single glucose anhydrides. They are, however, inclined to associate together to larger complexes, which makes it difficult to determine their molecular weight by usual means.

Without accepting the idea of the small units, the concept of depolymerisation was further developed *(14)* when it was tried to explain what happens to the cellulose during a number of technical processes, be it the process of mercerisation as applied in the textile industry and, further, the conversion of cellulose into solutions and the regeneration to artificial silk, to films, and the like, or be it the isolation of cellulose from plant material by the various processes of pulping, bleaching, etc. It was assumed that with all these processes larger complexes of molecules are broken up into smaller ones without change in the chemical structure of the molecule. The degree of depolymerisation, depending upon the intensity of the means applied, expresses itself in a change of various physical properties.

It appeared plausible to assume that by the various processes supermolecular forces which hold the molecules together in the various forms in which cellulose appears (as fibre and as amorphous cellulose), are loosened and broken down, which results in smaller complexes, and that this happens long before a change in the chemical structure of the cellulose becomes identifiable. How this conception may well be brought into harmony with the revival of the chain structure will be seen later.

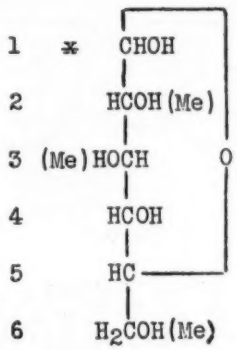


FIG. 2
Glucose. Amylene oxide form.

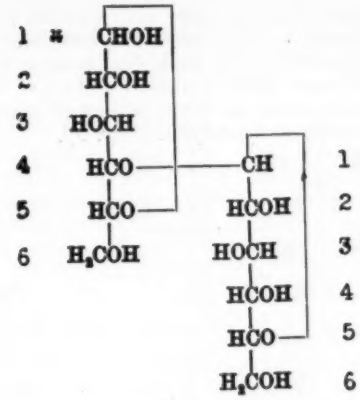


FIG. 3
Cellobiose. (1, 4 linking).

With the entire negation of the chain structure, as evident in Hess' monomeric anhydroglucose hypothesis, there is only one explanation left for the occurrence of cellobiose, namely, that it synthesizes itself during acetolysis by a process of "reversion," an explanation which, of course, is highly improbable.

In the meantime, the methylation of cellulose which *Denham (15)* had begun in 1913, was made the subject of renewed studies. Hydrolysis rendered trimethylglucose whose structure as that of a 2, 3, 6- methylated monose was recognized by Denham, confirmed by *Haworth* and *Leitch (16)*, and later by *Irwine* and *Hirst (17)*. This recognition, together with the fact that Irwine and Hirst could obtain a yield of about 80 per cent of 2, 3, 6- trimethylglucose was of importance, since it was capable of showing that in cellulose the hydroxyls of 1 and 4 of one glucose unit must be occupied. With cellobiose being known as one of the intermediate products of hydrolysis, there was no doubt that one, probably the hydroxyls in position # 4, was in glucosidic linking with the other glucose unit of the cellobiose, and it was only natural to assume that in this second unit (the non-reducing component) the hydroxyl in position # 4 was in the same type of linking with a third glucose molecule *(see Fig. 2, 3 and 4)*. Hence cellulose must consist of at least 3 glucose anhydrides and acetolysis should theoretically render two-thirds of cellobiose and one-third of glucose. *(Fig. 2, 3, 4)*. But whether the linking is a 1,4 or a 1,5 could not yet be told with certainty. It may be inserted here that already in Tollens' chain formula it is in positions

FIG. 4
Methylated cellotriose

2, 3 and 6 that the hydroxyles are available for methylation (or acetylation, etc.) whilst the positions 1, 4 and 5 are involved in linking the individual glucose units. Thus, Tollens' old and much contested formula would well explain the formation of 2, 3, 6- trimethylglucose from trimethylcellulose on hydrolysis. *(Fig. 5)*.

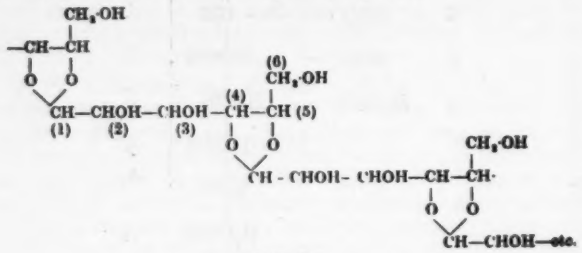


FIG. 5
Cellulose formula. (Tollens).

Although thus cellulose chemistry made good progress in the direction of chemical structure, the influence of the idea of the small units had reached even the rather conservative English chemists, for *Irvine* and *Hirst (18)* had suggested the cellulose molecule to be built up of 3 glucose anhydrides united to a ring formed triosesaccharide, in which the glucose anhydrides, still assumed to be of the buthylene oxidic structure, were connected up by a 1,5 linking.

Ring structure was assumed also to follow from the impossibility to detect any tetramethylglucose. An open chain naturally should have a beginning and an end, and the terminating groups would be each linked only to one neighboring glucose. This being the case, it follows that in the 2 terminating groups there should be, in each of them one more reactive group open to methylation *(see Fig. 4)*. In the reducing unit it is the reducing group which is open to methylation and in the other, the non-reducing unit, it is the hydroxyl in #4 position which will be methylated. On hydrolysis only the methoxyl of the reducing group is split off, and the latter is regenerated, whereas the methoxyl group in the other terminating unit remains. Thus, hydrolysis would have to yield a certain percentage of tetramethylglucose. Since the latter could not be found, ring structure was assumed.

Here we have to mention *Hibbert's* suggestion made about one year earlier *(18)*. His formulation of the glucose anhydride was the first attempt to account for the exclusive formation of 2, 3, 6 trimethylglucose (on hydrolysis of methycellulose), and it is interesting that his formulation is identical with that of the 3-glucosan which is formed on distillation of glucose under vacuum (see later). Hibbert left the number of glucose anhydrides open for discussion.

It must be emphasized that Denham, when he made his second investigation, already in 1917, had found a trace of a crystalline substance which "resembled tetramethylglucose." Although he did not pay much attention to it, he thought it possible that tetramethylglucose may be "a normal product of hydrolysis of methylated cellulose and that cellulose itself may chiefly be represented by an open chain of condensated glucose radicals." It is unfortunate that Denham made no further effort in this respect, for he, no doubt, would have saved the cellulose chemists a great deal of worry.

On the other hand, the search for the tetramethylglucose was never given up. As already mentioned, Irvine, together with Hirst, looked for it in vain and so did others after them, for instance *Freudenberg* and *Braun (19)* and it was not until 1932 that *Haworth* and *Machemer (20)* discovered it definitely.

At the time of which I am speaking, 1920-1923, the fact that tetramethylglucose could not be found, although it had indicated its presence dimly before, was added to the arguments against the chain structure, particularly in Germany, where the idea of the small units had been born and was being fostered more than anywhere else.

In general, the English chemists did not bother much about the new conception, the less so since Sponsler *(21)* and other X-ray investigators had made it clear that the elementary cell of the crystal lattice and the molecule of cellulose are two different things and were steadily recognizing the necessity of bringing their evidence into harmony with the results of research on the chemical structure which, at that time as we have seen, strongly pointed in the direction of a chain.

It was the time when the constitution of cellobiose and isomeric disaccharides such as maltose, etc., was in the focus of interest. In 1926, *Haworth, Charleton* and *Peat (22)* gave proof to the constitution of cellobiose as a 1-glucosido-4 glucose *(see Fig. 3)*, and in the same year Zemplén *(23)* arrived at the same structure by way of cyanhydrin synthesis.

About one year earlier, *Haworth (24)* had suggested a revision of the structural formula of glucose. Based upon the fact that normal tetra-methylglucose gives a δ-lactone on oxidation, all sugars existing in nature must be given the amylene-oxidic form (five-atom ring). Later, these types of sugars were given the hexagon ring modification (six-atom ring) as shown in Fig. 6.

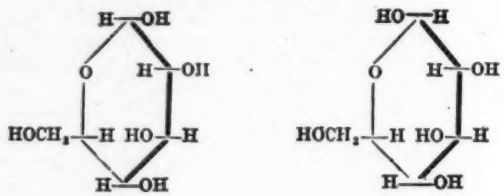


FIG. 6

Due to the similarity with pyrane, which is found to be the nucleus in many natural products, the saccharides were termed "pyranoses," involving a conception which has been accepted since. As will be shown later, Sponsler and Dore and later Meyer and Marck came to the conclusion that they could very well interpret the X-ray diffractions in the light of this new structural formula of glucose.

Using Haworth's pyranose structure of glucose, cellobiose is expressed as in Fig. 7.

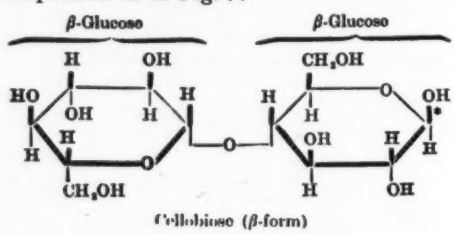


FIG. 7

The importance of the clarification of the cellobiose structure as well as of the new formulation may be expressed in Haworth's own words: "The elucidation of the ring structure of sugars gave a new impetus to constitutional study, and the allocation of the hexagon formula to glucose provided new interpretations of the experi-

mental evidence bearing on the constitution of the polysaccharides."

It was a lucky coincidence that at about the same time (1926) the search for oligosaccharides higher than cellobiose amongst the products of cellulose hydrolysis resulted in the isolation of a crystallized trisaccharide by *Ost (25)* and about the same time by *Irvine* and *Robertson (26)*. Already in 1923 *Bertrand* and *Bénoit (27)* had described a triose amongst the products of acetolysis and, as we know today, still earlier, namely in 1913, *Willstaetter* and *Zechmeister (28)* had isolated a triose and also a tetrose from the mixture which resulted from the hydrolysis of wood by means of strong hydrochloric acid. *(29)* Irvine and Robertson obtained the trisaccharide by interrupting the acetolysis immediately before the formation of the octacetate of cellobiose occurs, which in the old terms of cellulose chemistry means, before the last step of the formation of cello-dextrines was reached.

Probably this is a somewhat later stage than that from which Hess and, about the same time, Bergmann and Knehe believed to have isolated a bioseanhydride. However, these bioseanhydrides were later found *(30)* to consist of a mixture of longer and shorter links of the chain, a mixture, which, as Freudenberg has pointed out, may well crystallize uniformly. *(31)* Such may also be the case with Hess' crystallized acetyl-, methyl-, and nitrocellulose preparations. *(31)*

The formation of anhydrides when cellulose is exposed to certain reactions, is of course quite possible. But these anhydrides no doubt owe their formation to a secondary reaction. That is to say, whether it be by means of dry distillation as it was applied by *Pictet* and *Sarasin (32)* and which resulted in the discovery of the laevoglucosan (β-glucosan) or by other means, we have to assume that hydrolysis to mono- or di-saccharides is the primary reaction and that the loss of water follows.

These also are the phases of reaction which took place when *Freudenberg* (1927) isolated 2, 3, 6, trimethylglucose-anhydride *(33)*. *(see Fig. 8)*.

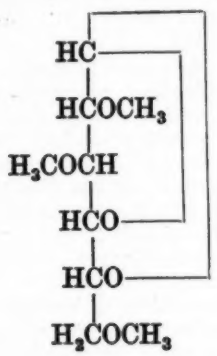


FIG. 8
2, 3, 6—Trimethylglucose anhydride.

On treatment with hydrogen chloride in ether trimethylcellulose renders 1-chloro-2, 3, 6-methylglucose which on removal of the chlorine by means of sodium metal, is converted into the 2, 3, 6 trimethylglucose anhydride. This anhydride behaves very differently from the trimethylcellulose; it has a melting point, a molecular weight in accordance with its monomeric formula, and it lacks any ability to associate itself to higher aggregates. Hence, there is no reason to ascribe to the glucose anhydride and other *lower* anhydrides, obtained from cellulose, such supermolecular forces as would effect association of single glucose anhydrides to the cellulose itself.

On the other hand, polymerisation of anhydro-sugars to complex compounds, such as for instance was observed by *Pictet* and *Ross (34)* on β-glucosan when heated to high temperature in the presence of zinc-chloride, or the re-association of the triacetate of a glucose anhydride from its solution in water to a cellulose-like substance, called "cellosan", as reported by *Pringsheim (35)*—such observations no doubt suggested the possibility of molecular aggregation by forces other than those which we utilize for synthesizing di-, tri- and higher saccharides. But in the case of Pictet's β-glucosan no other clear relation of the complex bodies to cellulose has yet been established and in the case of the association of Pringsheim's glucose anhydride to cellosan it is doubtful whether the primary process, namely the transformation of the cellulose into a glucose anhydride on heating in naphthalene, has actually gone so far, since the determination of the molecular weight, on which the conclusion was based, is unreliable.

In the light of the conception of physical depolymerisation, as explained before, we may assume that such processes first break down the bonds which hold the chain molecules together in their higher aggregates as to the micellae. If the processes are sufficiently severe depolymerisation will not cease at these bonds but will proceed further and attack the chains splitting them into shorter molecules. The products of such cleavages however are still so large that the characteristics of high-molecular substances are still evident.

An attempt to illustrate this principle was made by *Heuser* and *Hiemer* (1925) on various more or less degraded cellulose preparations from cotton cellulose, regenerated cellulose, hydrocellulose, down to cello-dextrines. They were methylated to an extent at which they became soluble in water and the aqueous solutions served for the determination of the degree of depolymerisation in various ways. It was found that the latter clearly depends upon the pre-treatment to which the cellulose had been subjected so that the degree of depolymerisation, expressed in various ways, may be well used for characterizing the various forms in which cellulose exists or into which it had been transformed. *(36)*

The results, presented before the Bunsen Society in Darmstadt in 1925, caused Staudinger *(37)* in the discussion to direct attention to the parallelism between the long chains of polymethylenes he had synthesized from formaldehyde and cellulose (depolymerisation of cellulose acetate), studies on which he had just started.

As indicated earlier, the processes of depolymerisation are manifold, and it would depend upon the means applied whether they result in still rather intact or in more or less shortened chains. These processes, in some cases, may also occur when originally rather intact cellulose is forced to go into solution. On regeneration, amorphous cellulose is obtained with physical properties different from the original substance. But the structural change which might have taken place on depolymerisation, either before or during the process of dissolving, has not yet become measurable, for the shortened chains are still so long that our usual means of chemical identification fail. As for the process of regeneration i.e., the spontaneous agglomeration which frequently has been observed in cellulose solution on standing for a certain length of time, we may well be permitted to endow the shortened anhydride chains in solution with supermolecular forces which under certain circumstances may effectuate the re-association of single chains of various lengths to bundles.

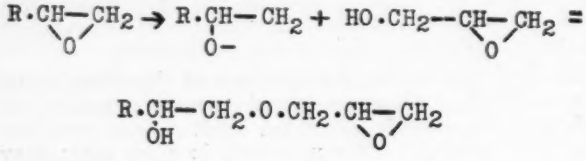
But these forces are certainly not attached to the lower anhydrides which we are able chemically to identify. For quite a large number of these have to be linked together (and it is important to note that this occurs through pri-

mary valencies) before the physical properties of the thus enlarged molecule become such as are characteristic of high molecular substances, that is their colloidal nature, their lack of crystallisation, their high viscosity in solution and the phenomenon of re-association. A classical example was supplied by Emil Fischer in the synthesis of larger and larger polypeptides. But not before a molecular weight of about 1200 was reached did the polypeptide behave as a colloidal substance. Later, Straudinger has, as mentioned, illustrated this principle in the long chains, the polymethylenes, which, regarding their physical properties, are well comparable with the cellulose molecule.

In the years from 1925 on *Staudinger (37)* developed his theory on the relation between molecular weight (chain length respectively) of cellulose in its various forms and derivatives and viscosity of solution. In general this theory says that viscosity in solution proportionately increases with increasing chain length and vice versa and that in solution we deal with the single chain molecules. If decreased viscosity expresses decreased chain length and presuming that dissolution does not change this length any further, it follows that on depolymerisation the first step is not the breaking up of the letheral bonds between the chains but is the shortening of the chains, and the micellae remain intact until dissolution takes place. We shall return to this conception once more in another chapter of this paper.

The comparability of the cellulose molecule and that of other natural products with synthetic polymers was also well illustrated on the polymeric products, amongst them polyamides and polyacetates comparable with natural silk and with cellulose, which were synthesized by *Carothers (38)* and his many cooperators (1929 and following years). On artificial threads obtained from such polymers Carothers could demonstrate that a useful degree of strength and pliability are reached only with a molecular weight of 12.000 and a length of the chain of not less than 1000 A. U.

Still more recently *Hibbert* (1933) followed similar lines *(39)* in building up long chains of ethylene glycol units applying the mechanism of polymerisation as first established for glycidol by Nef and, for other ethylene oxide containing compounds, by Levene and Walti, for instance *(see Fig. 9 and 10)*.



Ethylene oxide (glycidol) polymerisation

FIG. 9

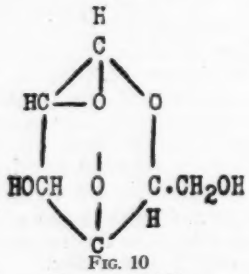


FIG. 10

Glucose anhydride.

Assuming glucose to react in its ethylene oxide form and thus to be capable of undergoing polymerisation in a similar way to ethylene oxide, Hibbert offered a working hypothesis for plant synthesis of sugars and polysaccharides. It is thought that to the free valence form of the ethylene oxide ring in the glucose anhydride a glucose is added to form a disaccharide. To the disaccharide another glucose is added resulting in a trisaccharide and so forth. This "intramolecular chain synthesis" is also illustrated in Fig. 11:

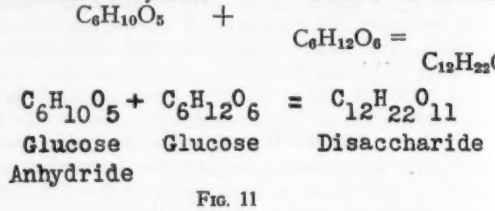


FIG. 11

From the foregoing it is evident that supermolecular forces become active only when the molecule has attained a certain, larger size, and it appears as if the development of such forces, as mysterious as this phenomenon may seem, is only the natural consequence of the larger growing molecule. The primary valencies do not suffice to keep so many units tightly enough together, and assistance is needed. This is supplied by the supermolecular forces.

The fact that these forces are a function of the growth of the molecule, may be regarded as a strong support of the belief that the dispersion of cellulose in solution does not dissolve the chains into monomolecular anhydrides, nor does it seem to be justified to assume that these forces are of a latent character in the lower anhydrides. The general belief today is that cellulose in solution exists in the form of its molecules, i. e., single chains of the same length as prior to dissolving.

Accepting the conception of depolymerisation, the hypothesis advanced some 25 years ago, namely that cellulose is chemically the same substance in all plants *(40)*, would still hold true, but with the reservation that such structural changes, which result in chains still being very long, cannot be made recognizable with our present chemical tools.

Doubtlessly, the plant, our great master, builds up the high molecular saccharides, as cellulose, starch, the pentosans, inulin and so forth, according to the same principle which prevails during synthesis in our laboratories, that is to say, it uses the primary valencies of the simple compounds for synthesizing the disaccharides, the oligosaccharides and so forth, already stabilizing them by dehydration, thereafter leaving it to the supermolecular forces to endow the longer and longer growing chains with still greater stability.

It appears very plausible to identify these forces with the "van der Waalian forces of molecular cohesion," a conception to which *van Laar* first has directed attention. *(41)*. These forces are assumed to increase with the size of the molecule. As we will see later, *Meyer* and *Mark* have attempted to estimate these forces for various chain lengths *(42)*.

With regard to the chemical identity of cellulose in plants, there is no doubt that different plants are, and even the same plant is, capable of polymerizing single units into chains of *different* lengths, and I am quite sure that we would find this view confirmed in the differences of viscosity in solution or by other methods, if we were able to isolate the chains of various lengths without degradation.

But what we are still unable to do, some bacteria seem to do for us in the way of biochemical synthesis, for the cellulose as produced by bacterium xylinum and acetylobacter from sugars, more recently under the close and

encouraging watch of Dr. *Hibbert (43)*, and which needs no other treatment than washing with water to be ready for investigation is chemically the same as plant cellulose, and it also gives, as *Clark* has shown *(44)*, and later (1933) *Champetier (45)*, and Mme. *Khouvine* (1933 and 1934) *(46)*, the same X-ray diagram as plant cellulose. It therefore should be an excellent material for enlighting us on the question of how many glucose anhydrides these bacteria are able to unite; in other words, whether or not their ability is limited compared with that of the plants.

Returning in our historical review to the year 1927 we find that it, generally speaking, had brought to light three outstanding facts: Firstly, cellulose has a high molecular weight compared with sugar anhydrides, which result from the degradation of cellulose and are monomeric. Secondly, hydrolysis renders besides glucose and cellobiose, a cellotriose, and thirdly, the linkings between the glucose units in the cellulose molecule are very likely no other than they were proven to exist in cellobiose.

Two years later (1929) *Willstaetter* and *Zechmeister (47)* produced the results they had already obtained in 1913 on hydrolysis of cellulose with strong hydrochloric acid and whereby, as mentioned before, a triose and a tetrose could be discovered. Also cellobiose was found amongst the products of hydrolysis, certainly a strong proof against the opinion that this disaccharide is not performed in cellulose but would owe its existence to a synthesis (reversion) during the milder process of acetolysis.

The polemics between representatives of the conception of the small units and those who tried to reinstate the classical conception of structural chemistry caused *Zechmeister*, some years later (1931), to investigate the hydrolysis with strong hydrochloric acid more thoroughly and he succeeded with *Toth (48)*, by means of fractionated precipitation, to confirm the previous results and to add to the triose and the tetrose, a cello-hexose, although the latter not in crystallized form. Moreover, the cellotriose on acetolysis rendered octacetyl-cellobiose and is therefore to be regarded as a cellobiosido-glucose *(see Fig. 4)*.

In the meantime (1930) *Freudenberg (49)* succeeded in producing the permethylated derivates of cellobiose, cellotriose, and cellotetrose, and at the same time and during the following years in synthesizing the first two of them (the di- and tri-derivative) by allowing trimethylmethylglucoside to react on the chlorhydrines of the methylated glucose and cellobiose respectively. By these syntheses, i. e., from components in which the modes of linking were known, and further by determination of the optical rotation values and finally by quantitative evaluation of the optical superposition could he prove that the two glucosido linkings in the cellobiose, the three in the cellotriose, the four in the cellotetrose, and the six in the cellohexose, all belong to the 8-series. Hence it is very probable that the cellulose itself contains only linkings of the β configuration. Only one α-linking, as in maltose, to 100 β-linkings would reveal itself by a distinct change of the molecular rotation.

Further proof for the fact that there is only one mode of linkings between the individual glucose units of the cellulose molecule was brought forth by a study of the kinetics of the cleavage as effectuated by hydrolysis and acetolysis. As these processes proceed with time, more and more carbonyl groups are being exposed, the number of which may be quantitatively estimated. Thus, the extent to which cleavage occurs, may be expressed as a function of time. Since the di- and oligo-saccharides submit to hydrolysis more easily than the longer chains, the premise to the kinetic calculation, namely that all linkings undergo cleavage with the same ease, is not quite fulfilled. Yet, a decision could not be made as to whether the linkings are equal or whether different linkings alternate.

After the fundamentals of such investigations had been established by *Meyer, Hopff* and *Mark (50)*, and by W. *Kuhn (51)*, *Freudenberg's* numerous investigations during recent years leave no doubt that the linkings in the cellulose are all of the same type *(52)*.

Thus at the present time (1935) cellulose presents itself as a chain, in which numerous pairs of glucose units are linked together in a mode corresponding to that obtaining in the cellobiose, namely in 1,4 position, and only the length of the chain, i. e., the number of glucose units, remains to be discussed.

It will be remembered that the permethylated *(53)* cellulose on hydrolysis renders, according to *Haworth* and *Machemer (54)*, besides trimethyl glucose, a certain amount of tetramethylglucose (0.6 per cent), indicating that the (non-reducing) glucose unit at the end of the chain possesses four hydroxyl groups open to methylation. The additional hydroxyl is that in No. 4 position *(see Fig. 12)*.

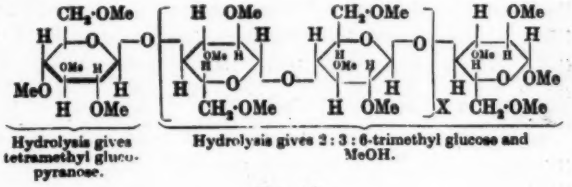


FIG. 12
Haworth and Machemer.

The proportion of tetramethyl to trimethylglucose thus furnishes a measure of the length of the chain. Haworth and Machemer have calculated it to consist of not fewer than 100 and not more than 200 glucose units, and they regard this size to be the average lower limit of the cellulose molecule. The corresponding molecular weight of the cellulose would be between 20,000 and 40,000.

This method of determining the length of the chain—apart from the fact that the latter depends upon the past history of the culledon preparation used—may be open to criticism since the method of hydrolysis as well as that of isolation of the tetramethyl product are not quantitative. With a similar criticism we have to face the other methods which from the special significance of a terminal unit or groups try to calculate the length of the chain. This is so with *Bergmann* and *Machemer's* method based upon determination of the carbonyl group in the terminating unit *(55)* and, still less reliable, the method of *E. Schmidt*, who assumes a free carboxyl group *(56)*.

Although sometimes agreement in molecular weights derived from different methods has been found, the discrepancies prevail. *Stamm*, using Svedberg's ultracentrifugal method on a cuprammonium solution of native cellulose arrived at 250 glucose units *(57)*. *Kraemer* and *Lansing* found higher values *(58)*. By measuring the breadth of the lines taken along the fibre axis in the X-ray diagram, *R. O. Herzog* and *Krüger* calculated a molecular weight of 20,000 for native Ramie cellulose *(59)*, and similar values are found by Herzog and by Duclaux using the osmotic pressure method. Again, Staudinger, by the viscosity method, arrives at 750 glucose units. Thus, the question appears still open to discussion, unless Dr. Kraemer, who is going to enlighten us on this subject with a special paper, will be able to give us a definite answer.

In the meantime we may agree with Haworth, who says: "It is of no vital importance whether the value is to be increased to 100,000 for with either value the gen-

eral structure and conformation of the cellulose are satisfactorily envisaged."

Thus, after many years of struggle and error, it was the chemical structure of the cellulose which had to be purged of fruitless speculation and to be established beyond doubt before other problems could be satisfactorily tackled.

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(To be continued)

Pulp and Paper Industry Literature Review

Abstracts of Articles and Patents Compiled by the Abstracts and Bibliography Committee of the Technical Association of the Pulp and Paper Industry, A. Papineau-Couture, John F. Ohlson, C. E. Peterson and Clarence J. West, Chairman

Copies of United States Patents can be obtained from the United States Patent Office, Washington, D. C., for 10 cents each. Send currency, not stamps.

Analytical and Testing Methods

Determining the Rigidity, Stiffness and Softness of Paper. James d'A. Clark. Paper Trade J. 100, No. 13: 41-44 (March 28, 1935).—Various methods for determining the stiffness of flexibility of paper and paper board are reviewed briefly, and a new simple method is presented for determining the rigidity (flexural resistance), rigidity factor (proportional to the modulus of rigidity) stiffness (inverse of flabbiness), and softness (feeling when crumpled). The tests can be made simply with a threefold pocket rule and consist essentially of determining the overhang of a strip which, when the clamped end is rotated through a right angle, will just fall over in the direction turned, and applying a given formula. Results can be reproduced to within 5 percent.—A.P.-C.

The Testing of Corrugated Cardboard. Lhomme et Argy. Papeterie 57: 349-350 (April 25, 1935).—The actual area subjected to pressure in the Mullen tester is much too small for the satisfactory testing of corrugated paper or cardboard; in such cases it should preferably be 100 sq. cm. The rate of applying pressure is not sufficiently defined by stating the number of r. p. m. of the hand- (or motor-) driven wheel, as the diameter of the piston differs in different instruments; it would be defined more accurately by specifying the volume of liquid per sec. that is pumped into the pressure chamber. As the strength and stiffness of the rubber diaphragm affect the results, it is essential that the characteristics of the rubber be suitably defined and constant which could probably be most practically accomplished by specifying the pressures which should produce definite deflection of the diaphragm when placed in the instrument in the absence of test specimen.—A.P.-C.

Kollergang Beating Method for Pulp Evaluation. James d'A. Clark. Paper Trade J. 100, No. 11: 36-44 (March 14, 1935).—A detailed description of an apparatus and method for beating, with a marked degree of precision, all the usual kinds of paper making pulps, which is offered

as a standard method in conjunction with the British sheet machine. The apparatus consists of an annular V-shaped trough in which three runners, having a fixed weight of 80 kilos, are caused to rotate positively, the working edges not being subject to change.—A.P.-C.

Sampling Paper for Testing. Anon. Paper Trade J. 99, No. 21: 41 (Nov. 22, 1934).—A tentative revision of the TAPPI standard method.—A.P.-C.

The Optical Characteristics of Paper. I. The Mathematical Relationships Between Basis Weight, Reflectance, Contrast Ratio, and Other Optical Properties. F. A. Steele. Paper Trade J. 100, No. 12: 37-42 (March 21, 1935).—The equations of Kubelka and Munk, which show the relationships between reflectivity, reflectance over a background of known reflectance, and the thickness of thin layers of a diffusing substance, can be used for calculating the opacity of a sheet of paper differing in basis weight or reflectivity, *i.e.*, the reflectance of a completely opaque pile, or both, from another sheet whose optical characteristics are known. Charts are given whereby the calculations are made very simple.—A.P.-C.

Evaluation of the Printing Quality of Paper. B. L. Wehmhoff. Paper Trade J. 100, No. 6: 41-44 (Feb. 7, 1935).—A presentation of the results of work done during the past two years covering methods of evaluating the printing quality of paper. While all of the tests are not in general use in either the paper or printing industries, they have had sufficient trial to prove their practical value, evidence to this effect being presented in the form of laboratory test results and printed specimens.—A.P.-C.

A Water Absorbency Tester Using 0.1 cc. of Water. S. W. Feese and M. A. Youtz. Paper Trade J. 100, No. 7: 33-34 (Feb. 14, 1935).—A description of a simple apparatus, quick and easy to operate by inexperienced men (such as machine tenders, etc.), which will deliver 0.1 cc. of water with a maximum variation of about 1 percent from the average. The technic of the determination is described in detail.—A.P.-C.

The Testing of Newsprint for Smoothness, Ink Penetration and Opacity. W. G. Dodge and C. E. Tarvin. Paper Trade J. 100, No. 5: 38-40 (Jan. 31, 1935).—A new smoothness tester and a new penetration tester are described. A study of opacity showed that the contrast-ratio method is less accurate than is a direct measurement of the light passing through the sheet.—A.P.-C.

Testing and Classification of Coated Papers. Harold M. Annis. Paper Trade J. 100, No. 10: 43-44 (Feb. 28, 1935).—A summary of the results of a questionnaire on testing methods used in coated paper mills, together with an outline of coated paper quality trends and coated paper grading specifications.—A.P.-C.

Machine for Making Paper Test Sheets. Alfred Schopper, Bruno Possanner von Ehrenthal and Ernest Unger assignors to the firm Louis Schopper. U. S. pat. 1,995,586 (March 26, 1935).—A special drying device is provided which permits of drying the sheet by pressing and heating on the screen on which it is formed—A.P.-C.

Pulp Purification

Separating Slimy Substances from Fiber Stock. J. M. Voith & Co. Fr. pat. 777,123 (Aug. 11, 1934).—The stock is passed through a stationary, horizontal drum covered with a wire screen of sufficiently fine mesh to prevent substantially all the fiber from passing through it. In its passage through the drum the stock is subjected to intensive washing created by a pulsating action (produced by "whipper plates" which rotate very close to the inside surface of the drum) and powerful water showers, thereby separating slimy substances such as gums, resins, etc.—A.P.-C.

Process of Removing Resin from Sulphite Pulp. Gustaf Haglund assignor to Patentaktiebolaget Grondal Ramen. U. S. pat. 2,000,562 (May 7, 1935).—Pulp at a consistency of about 10 to 15 percent is subjected to a mechanical squeezing action in presence of alkali, suitably 1 percent caustic soda calculated on the weight of dry fiber.—A.P.-C.

Manufacture of Mercerized Cellulose Products. George A. Richter assignor to Brown Co. U. S. pat. 1,999,059, (April 23, 1935).—Wood pulp is treated with a mercerizing liquor containing an oxidizing agent under conditions which will raise the alpha-cellulose content to over 96 percent and will lower the viscosity to about 0.6. The treated pulp is washed and formed into a waterleaf sheet.—A.P.-C.

Improving Cellulose. Emil Scheller. U. S. pat. 1,998,389 (April 16, 1935).—Pulp is treated with alkali at increased temperature and is partially bleached with chlorine. Bleaching is subsequently completed with an active oxygen containing substance capable of yielding hydrogen peroxide under the conditions of the process while regulating the quantity of elemental oxygen present, and the material is finally acidified.—A.P.-C.

Specialties

Method and Apparatus for Double Creping of Paper and the Like. Rudolf Heitmann. Fr. pat. 774,484.—Paper that has been creped transversely is led into a passage having a cross section but slightly greater than that of the sheet of paper; the width of the passage is narrowed while the sheet is in it, thereby creping the sheet longitudinally. The passage is then restored to its original width, the sheet is advanced for a length equal to that which has been creped, and the cycle of operations is repeated.—A.P.-C.

Impregnated Fibrous Material. The Raybestos Co. Fr. pat. 772,882.—Paper formed in the usual manner on a fourdrinier wire, is transferred therefrom on to another endless conveyor (suitably an open-meshed wire cloth) and passed through an impregnating bath, such as rubber latex.—A.P.-C.

Manufacture of Paper Possessing Very High Tensile Strength. H. H. Nelson and Guillaume Becker. Fr. pat. 44,155, addition to 735,525.—Stock in the beater is treated with a fresh homogenous solution of cellulose sulphocarbonate, manufactured so that it shall have as high a viscosity as possible; and hydrated cellulose is precipitated on to the fibers by adding just the proper amount of acid to discharge the micelles, an equimolecular mixture of sulphurous acid and alkali bisulphite being particularly suitable.—A.P.-C.

Manufacture of Safety Paper and Like Materials. E. I. du Pont de Nemours and Co. Brit. pat. 423,046 (July 24, 1933).—Documents are protected against forgery by use of ink eradicators by impregnation of the paper with a 2-aminoor-aryl, -aralkyl-, or -alkyl-amino-arylthiazole or its (halegeno-, alkyl, alkoxy-, amino, nitro, or sulfonic) substitution products.—A.P.-C.

Insect Repellent and Medicated Paper. Joseph Rossman. Paper Trade J. 100, No. 7: 39-40 (Feb. 14, 1935).—Short abstracts of U. S. patents relating to inventions for making paper, wall boards or carpet linings having substances which will repel moths and other insects, and also for paper containing disinfectants.—A.P.-C.

The Influence of Printing Processes on Paper Quality. James Strachan. Paper Maker & Brit. Paper Trade J. 88: No. 5, TS193-194 (Nov., 1934).—A brief

outline of the development and improvement in quality of paper as a result of developments and improvement in printing processes.—A.P.-C.

Resinate Copperized Paper. William R. Barber, Albert G. Natwick and Maurice W. Phelps, assignors to Pacific Mills, Ltd. Can. pat. 346,222 (Nov. 20, 1934).—To each ton of unbleached sulphite pulp is added 160 lb. of thick size, or other suitable size equivalent to 112 lb. of dry size. The stock is beaten for 30 min., then 40 lb. of copper sulphate in suitable water solution is added to the stock. Beating is continued for 15 to 20 min. A slight excess of size is maintained with a backwater pH of not less than 6.0. The paper prepared from the stock will contain in excess of the desired 1 percent by weight of copper resinate; that amount of copper resinate being considered necessary to impart to the paper sufficient resistance to the deterioration and destruction of its fiber when used as a plant cover or fruit wrapper.—A.P.-C.

Copperized Paper. William R. Barber, Albert G. Natwick and Maurice W. Phelps assignors to Pacific Mills Ltd. Can. pat. 345,855 (Nov. 6, 1934).—For each ton of unbleached pulp 30 lb. of dry sodium ortho-phenylphenoxide is added to the beater water and circulated for 10 min. to effect complete solution. Slush and lap stock are added to the desired consistency and beating is continued for half an hour. Then 25 lbs. of copper sulphate in solution is added, and the stock is beaten for 30 min. The paper sheet prepared from the fiber contains in excess of 1 percent copper ortho-phenylphenoxide and lends itself in supercalendering to transparency. The paper is used as a plant cover and fruit wrap.—A.P.-C.

Paper for Telegraphic Recording Instruments. Wilhelm Koreska. Brit. pat. 417,958 (Oct. 16, 1934).—The bursting strength of a sheet of paper for recording copying-telegraph signals, etc., is made less than that of the surrounding air by impregnating yoshino paper, lightly sized or unsized rag paper, etc. with an electrolyte, *e.g.*, sodium chloride, calcium chloride, magnesium chloride, sodium lactate or incorporating good conductors in the paper, *e.g.*, lamp-black, powdered graphite, powdered aluminum or copper.—A.P.-C.

Wrapping Tissue. Maurice V. Hitt assignor to E. I. du Pont de Nemours and Co. U. S. pat. 1,997,583 (April 16, 1935).—A suitable base is thinly coated on both sides with a composition comprising 10 parts of pyroxylin (having a nitrogen content of 10.5 to 11.4 percent), 4 to 12 parts of a plasticizer of the solvent softener type, 1 to 2 parts of a bleaching agent and 0.1 to 1 part of wax. The composition provides a transparent, moistureproof, flexible coating having good surface slip and heat sealable to produce a joint which is stronger than a similar joint produced when the material is solvent-sealed with acetone.—A.P.-C.

Wrapper Pad. Ludwig Clemens. U. S. pats. 1,999,282 and 1,999,283 (April 30, 1935).—A number of sheets of paper indented or stamped in a spherical or waferlike fashion are combined with interposed layers of plane gummed paper, and the whole is united by pressing or embossing in point-like or other fashion. *No. 1,999,282* covers the product and *No. 1,999,283* the process of making it.—A.P.-C.

Laminated Composite Paper. Garrett B. Linderman, Jr., assignor to Pittsburgh Equitable Meter Co. U. S. pat. 2,000,528 (May 7, 1935).—A laminated composite stationery paper consists of a layer of metallic foil adhesively secured by unvulcanized latex to external sheets of paper of writing paper quality.—A.P.-C.

Typewriter Paper of Deferred Indelibility and Method of Preparing the Same. John G. Callan. U. S. pat. 1,994,750 (March 19, 1935).—A paper from which recent typing is readily erased by means of a soft rubber (*e.g.* "art gum") and on which the typing becomes progressively harder to erase with time, is obtained by applying a thin coating (preferably of casein hardened with formaldehyde) of even thickness that follows the surface irregularities of the base paper.—A.P.-C.

Method of and Apparatus for Manufacturing Fiber Board. James N. Devereux. U. S. pat. 1,997,136 (April 9, 1935).—A watery mixture of fine and coarse wood fibers is agitated and aerated so as to produce a foam which floats the fine fibers to the surface of the mixture. The foam is subsequently "killed" in such a manner as to deposit the fine fibers carried by the foam as a think skin which is smoother and more resistant to water than the surface of the usual board.—A.P.-C.

Paper Manufacture. Joseph H. Swan, 3rd assignor to The Gardner-Richardson Co. U. S. pat. 1,997,984, (April 16, 1935).—A paper or board which is greased and moisture-proof, is sufficiently flexible and elastic to permit bending, is substantially odorless and tasteless, stands up well in use and does not objectionably deteriorate upon standing for considerable intervals of time, is produced by applying a backing coating comprising essentially rubber latex and casein, drying, and applying a second coating comprising essentially a mixture of an oil-insoluble adhesive (such as casein), a polyhydric alcohol (such as glycerine), and a preservative (such as paraformaldehyde). The coated paper may be treated with a metallic salt (such as aluminum sulphate) to precipitate or otherwise fix the coating, and a very thin film of paraffin may also be applied.—A.P.-C.

Manufacture of Artificial Boards. Orcutt W. Frost assignor to Wood Conversion Co. U. S. pat. 1,995,145 (March 19, 1935).—A core (or thick central layer) of fibrous material such as groundwood, semi-chemical or chemical wood pulp (preferably in admixture with sawdust, excelsior, etc.) is formed around elongated rod-like elements, and surface plies are applied to each side and pressed together. After drying the rod-like elements are withdrawn from the core.—A.P.-C.

Stencil Sheet. Clarence W. Mabley assignor to A. B. Dick Co. U. S. pat. 1,997,594 (April 16, 1935).—A sheet of yoshino paper is impregnated with a gelatin solution containing some softening material and, while still wet, is squeezed onto a smooth metallic plate. The exposed surface of the sheet is brushed with a thin solution of the same gelatin composition as that with which the yoshino sheet was impregnated. A sheet of open, woven fabric (such as organdie, nainsook or bolting cloth) is placed on the exposed surface of the impregnated sheet and lightly squeegeed into intimate contact therewith. The laminated unitary stencil sheet thus produced is allowed to dry on the metal plate. Just before the sheet is to be sencilized the gelatin is sensitized by floating the sheet on a 1 percent solution of ammonium or potassium bichromate and then drying it on a squeegee plate in the dark.—A.P.-C.

Vegetable Parchment. Paul B. Davidson. U. S. pat. 1,996,857 (April 9, 1935).—Paper is impregnated with ethyl and (or) methyl abietate, with or without addition of rosin oil, dissolved in a suitable solvent, preferably ethylene dichloride. Oily condition of the paper is prevented by adding to the impregnating solution either ester gum, rosin, heat-treated rosin, or sucrose octoacetate.—A.P.-C.

Manufacture of Roofing or Siding Material. John C. Sherman assignor to Brown Co. U. S. pat. 1,995,904 (March 26, 1935).—A web of tapered thickness, for impregnation and making into shingles or shingle strips, is

formed on an endless wire travelling around a cylinder mold rotating partly immersed in a vat of stock. The variation in the depth of stock deposited across the width of the wire is obtained by placing immediately inside the cylinder mold a curved shield made up of two cylindrically triangular portions, one of which is imperforate to hold back the water and the other provided with numerous perforations to allow the water to pass through and the fibers to deposit on the wire.—A.P.-C.

Apparatus for and Method of Applying Surfacing Material to Impregnated and Coated Roofing Felt. Norman P. Harshberger assignor to Bakelite Building Products Co., Inc. U. S. pat. 2,000,077 (May 7, 1935).—Mineral material is supplied to a hopper in strata of different colors by means of a rotating segmented drum, and is delivered to an endless belt conveyor which transfers it to the coated and impregnated roofing felt while the coating is still soft and plastic.—A.P.-C.

Method of Treating Asphalt Shingles and Composition Therefor. Lloyd A. Fry assignor to The Lehon Co. U. S. pat. 2,000,226 (May 7, 1935).—Composition shingles or shingle strips having inwardly beveled edges (so that the upper side is larger than the under side) are piled with their beveled edges in substantial alignment, and a spray of protective coating (*e.g.*, resin 3.5 percent gilsonite 33 percent, heavy painter's and varnisher's naphtha 12.5 per cent, light painter's and varnisher's naphtha 51 percent) adapted to form a bond with certain ingredients of the coatings on the shingles, is directed at an acute angle to the side of the pile.—A.P.-C.

Method and Apparatus for Producing Mix-Tone Roofing. William Freegard assignor to The Barber Asphalt Co. U. S. pats. 1,998,078 and 1,998,079 (April 16, 1935).—Differently colored granules are supplied to an impregnated and coated roofing in a mixture of continually or frequently varying proportions, the change being effected automatically and producing a gradual blending of colors and at the same time varying the predominance of the different colors in different areas without producing continuous streaks of any one color. *No. 1,998,078* covers the method and *No. 1,998,079* the apparatus.—A.P.-C.

Decorative Sheet Material and Process for Preparing the Same. Ralph G. Jackson. U. S. pat. 1,998,780 and 1,998,781 (April 23, 1935).—*1,998,780*—Wood pulp is treated with a swelling agent (such as caustic soda) and washed before any substantial gelatinization occurs. The curled and swollen fibers are formed into a sheet; a colored liquid is applied to the surface of the sheet and penetrates vertically inwards to an appreciable depth, and the decorated sheet is subjected to mechanical napping treatment on one or both sides. *1,998,781* provides for combining two sheets such as described in the previous patent with an intermediate supporting layer of coarse or exceedingly tough material.—A.P.-C.

Heat- and Sound-Insulating Material. Ross Winship assignor to The Upson Co. U. S. pat. 1,993,470 (March 5, 1935).—A textile fabric is partially unraveled to form a mass of kinked fibers, and the fibers (in substantially unhydrated state) are secured by an adhesive to a base such as kraft paper.—A.P.-C.

Apparatus for Making Roofing. Arthur G. Leonard, Jr., assignor to Orenda Corp. U. S. pat. 1,995,032 (March 19, 1935).—The invention provides a specially constructed trough for feeding grit surfacing material that ensures uniform feeding across the full width of the sheet of roofing, without segregation or accumulation of powdery material along certain portions of the sheet.—A.P.-C.

Laminating Sheets of Paper with Phenol-Aldehyde Resin. Gerald H. Mains assignor to Westinghouse Electric and Manufacturing Co. U. S. pat. 1,987,694 (Jan. 15, 1935).—Sheets of paper are impregnated with phenol-aldehyde resin, the surface of the sheets is partially dried, the sheets are washed in an aqueous alkaline liquid and are then heated to 60° to 120°C. to remove odorous substances and retain heat-hardening properties in the resin. Sheets which have been thus treated may then be united under heat and pressure.—A.P.-C.

Flexible Moistureproof Films Suitable for Wrapping Foods, Etc. Lloyd L. Leach and John C. Seimann assignors to du Pont Cellophane Co. U. S. pat. 1,990,080 (Feb. 5, 1935).—A sheet or film of material such as regenerated cellulose or treated paper is coated with a transparent coating containing rubber and with an overlying coating of moistureproof material such as a gum, resin or wax composition.—A.P.-C.

Paper Manufacture. Herman R. Harrigan and John M. Krauss assignors to District of Columbia Paper Manufacturing Co. U. S. pat. 1,997,487 (April 9, 1935).—A high wet tensile strength is imparted to an absorbent paper by passing it through an aqueous solution of glue and formaldehyde and then drying. Most satisfactory results are obtained with a solution containing 3/8 lb. of animal glue and 3 fl. oz. of 37 per cent formaldehyde per gallon.—A.P.-C.

Indented Paper. William H. Ellis, Jr. U. S. pat 1,995,057 (March 19, 1935).—A sheet of dry paper is moistened to a 10 to 25 percent water content and is passed between a pair of rolls equipped on their surfaces with alternate offset rows of small pins.—A.P.-C.

Manufacture of Paper. Alexander Nathansohn. U. S. pat. 1,996,707 (April 2, 1935).—Paper is rendered impermeable to water without any change in its remaining physical and technical qualities by treating it at any suitable stage in its manufacture, or after its completion, with esterifying derivatives of higher fatty acids, *i.e.*, a chloride or anhydride of a fatty acid containing 10 or more carbon atoms.—A.P.-C.

Rubberized Fibers Suitable for Felting in Paper Manufacture. George R. Tucker and Langley W. Isom assignors to Dewey and Almy Chemical Co. U. S. pat. 1,992,589 (Feb. 26, 1935).—Fibers such as those of cotton, wood, jute, etc., are contacted with an aqueous dispersion of cathode-depositing colloidal rubber.—A.P.-C.

Impregnation of Paper with Latex, Asphalt, Size Etc. George A. Richter assignor to Brown Co. U. S. pat. 1,995,623 (March 26, 1935).—Material to be impregnated is treated with an aqueous medium containing a waterproofing material such as bitumen in the presence of a wetting-out agent such as "Nekal BX" and the material is then dried and the wetting-out agent is subsequently destroyed, as by heating.—A.P.-C.

Waterproof Abrasive Paper. Carl Munch assignor to Atas-Ago Chemische Fabrik Aktiengesellschaft. U. S. pat. 2,000,532 (May 7, 1935).—A solution of a cellulose ester is applied to one face of an unsized paper, and the abrasive material is placed on the treated face. After drying the paper the other face is treated with an alcoholic resin solution containing an organic solvent for the cellulose ester and the resin, whereby a union between the cellulose ester layer and the resin layer can be effected.—A.P.-C.

Translucent Paper. Paul B. Davidson. U. S. pat. 1,996,858 (April 9, 1935).—Transparent or translucent paper, suitable for tracing purposes, is produced by impregnating paper with a solution of sucrose octo-acetate in a volatile solvent and evaporating the solvent.—A.P.-C.

Fibrous Composition Gordon E Wightman. U. S. pat. 1,996,314 (April 2, 1935).—Laminated stock suitable

TAPPI Section, Page 313

for electrical insulation comprises superposed sheets of porous wood fibers having an alpha-cellulose content of at least 90 to 94 per cent bonded with a synthetic resin.—A.P.-C.

Safety Paper. Samuel S. Himmell 1. U. S. pat. 1,998,237 (April 16, 1935).—Suitable identifying marks are printed directly upon a base paper and are covered by a suitable coating (*e.g.* clay 67 percent, satin white 18.2 percent, casein 13.8 percent, soda ash 1 percent) the light permeability of which is increased when it is moistened so that the protective marking is either absolutely or relatively invisible, until the surface coating is moistened.—A.P.-C.

Fiber Gear. John C. Sherman assignor to Brown Co. U. S. pat. 1, 999,062 (April 23, 1935).—Several plies of absorbent paper made from unbeaten high alpha-cellulose wood pulp are uniformly impregnated with a suitable synthetic resin binder, compressed together, cured by known processes and made into gears.—A.P.-C.

Pulp Molding Machine. Alonzo H. Maginnis. U. S. pat. 2,000,085 (May 7, 1935).—The machine is designed and constructed so that the perforated pattern plates on the forming drum are subjected to vibration while immersed in the pulp, so as to get a more even application of pulp and a closer and firmer interlocking of fibers, resulting in a lower moisture content of the deposited pulp and more faithful following of the contour of the pattern plate. A perforated distributor plate is provided in the vat, together with pulp agitating means under the plate. Drums of the same diameter and rotating at the same speed as the forming drum are provided with plates that match the pattern plates on the forming drum; the first is an extracting drum to remove excess moisture and press the molded product, and the second is a transfer drum which removes the molded products for subsequent treatment.—A.P.-C.

Apparatus for Producing a Thermoplastic Covered Metallic Article. James d'A. Clark and Herbert A. Kidd assignors to The Mead Research Engineering Co. U. S. pat. 1,996,951 (April 9, 1935).—The invention provides a machine for appying a covering of fibrous material and low-penetration, high softening-point asphalt, on sheet metal.—A.P.-C.

Paper Manufacture. Brown Co., assignees of G. A. Richter. Brit. pat. 423,471 (March 21, 1934).—Slush pulp, or the web of paper, is treated with a 0.5 to 2 percent solution of cellulose hydroxy-ether in caustic soda, so that the paper finally contains 0.5 to 2 percent of the celluose ether; the latter is then precipitated by addition of an acidic reagent such as alum, sodium bisulphite or sulphur dioxides; 15 percent of glycerine may be added as a softening agent. It is claimed that a highly porous and water-absorbent paper, having a high wet strength, is thereby produced.—A.P.-C.

Wrapping Papers. M. Elde. Papier 38: 347-352 (April, 1935).—Practical operating directions relative to the manufacture of various kinds of wrapping papers: glassine, parchment, imitation, kraft, imitation kraft, and a few grades of secondary importance.—A.P.-C.

The Reverse Side of Paper. Anon. Papier 38: 231-240 (March, 1935).—A discussion of the principal factors which cause the production of a "reverse side" in paper, pointing out the drawbacks which this phenomena can produce in printing, and giving practical indications for the manufacture of paper that is identical on both sides.—A.P.-C.

Method of Making Fibrous Lumber and Insulating Material. Walter C. Miss. U. S. pat. 1,996,343 (April 2, 1935).—A liquid suspension of fibrous pulp is formed into a sheet or mat on a vacuum cylinder rotating in a vat of stock. A (preferably) soft resilient roll engages the cylinder at a point outside the vat, and a surfacing filler is applied to the wet sheet while it is still being subjected to suction.—A.P.-C.

Wrapping Communicating Cable with Pulp. Earle W. Gage. Pulp Paper Can. 36; 118-119 (Feb. 1935).—A description of the process as carried out in the plant of the Western Electric Co.—A. P.-C.

Use Requirements of Gumming Paper. Fred Holt, Jr. Paper Ind. 16; 760-761 (Feb., 1935).—A brief outline of the properties and qualities required of paper for gumming—A.P.-C.

Embossed Paper. M. Mougeot. Fr. pat. 773,423 (May 18, 1934).—At a suitable point in the paper machine, where the sheet is still in a plastic condition, the sheet is passed between an upper roll carrying the desired design in relief and a lower roll which either carries the design in negative relief or is provided with a soft rubber or felt covering. The embossing roll is of small diameter and a larger roll is mounted above it and presses it against the lower roll.—A. P.-C.

The Use of White Water in the Fine Paper Industry. G. I. Hoover. Pulp Paper Can. 36; 69-72, 74 (Convention Issue, 1935).—A discussion of the principles underlying the use of fourdrinier paper machine white water in the fine paper industry, with particular reference to Canadian operating conditions.—A. P.-C.

Machinery

New Uses for Monel Metal in the Paper Industry. Anon. Paper Trade J. 100, No. 18; 41-42 (May 2, 1935).—A brief outline of some developments during 1934 in the use of monel metal of interest to the pulp and paper industry.—A. P.-C.

Nickel Alloys in the Paper Making Industry. A. B. Everest. World's Paper Trade Rev. 103; 831-836, 876, 878, 996-1000, 1034, 1036 (March 15, 29, 1935).—A description of the applications of the nickel alloys in the different stages of paper manufacture.—A. P.-C.

Method and Device for Distributing Fibers on Fourdrinier Wires. Ivar Wallquist. Fr. pat. 772,395; Belg. pat. 405,720, (Nov. 30, 1934).—Fluid jets are directed against the stock on the fourdrinier wire while it is still in fluent condition, in a direction such that currents are set up in the stock substantially perpendicular to the direction of travel of the wire.—A. P.-C.

Removing Water from the Freshly Formed Sheet on Paper Machines. William P. Evans. Fr. pat. 775,041, (June 25, 1934).—The invention relates to various mechanical features in the construction of suction boxes in which the wre is supported by a suitable perforated endless travelling belt as it passes over the suction boxes.—A.P.-C.

Elimination of Mists from Paper Machine Rooms. Anon. Papeterie 56, 1081-5 (Oct. 25), 1178-1182 (Nov. 25, 1934).—An explanation of the elimination of mists and vapors from paper machine rooms by ventilation with air heated by means of flue gases, together with a description of such an installation in a Belgian board mill.—A. P.-C.

Paper Winding Nomographs. D. S. Davis. Paper Ind. 16, 688-689 (Jan., 1935).—Alignment charts that are useful for making calculations relative to paper winding are given and briefly explained.—A. P.-C.

Power Losses Reduced Through Sectional Drive. F. W. Parson and A. M. Cooper. Paper Ind. 16, 694-695 (Jan., 1935).—A brief explanation of the savings effected by the Glassine Paper Co., West Conshohocken, Pa., by replacing its mechanical drive with an electric sectional drive.—A. P.-C.

Stock Consistency Regulator. J. M. Voith & Co. Fr. pat. 773,437 (May 18, 1934).—The device is mounted

as close as possible to the point of delivery of the stock on to the paper wire. The stock passes through a drum which rotates at constant speed and is divided into equal compartments or cells by means of radial partitions extending from the circumference to the center, so that a constant volume is delivered. A suitable float is mounted on the delivery side. Variations in consistency produce variations in the level of the stock, and consequently in the height of the float, which is connected to operate the valve in the dilution water line so as to restore the consistency to the desired value.—A. P.-C.

Consistency Regulator. F. V. Mon. Papeterie Belge 15: 27, 29 (Jan., 1935).—A brief description of the construction and action of the patented Voith stock consistency regulator, which is installed as close as possible to the point of delivery of the stock to the paper machine, and which is claimed to be sensitive to 0.02%.—A.P.-C.

Some Factors Influencing the Life of Fourdrinier Wires. N. B. Pilling, F. L. LaQue and F. G. Wheeler. Paper Trade J. 100, No. 6: 34-41 (Feb. 7, 1935).—A study of the causes of limited wire life of fourdrinier wires, with an analysis of the various stresses affecting wire life. Photomicrographs are given showing that grain size provides a means of subjecting wires to give maximum life and each machine may have an optimum grain size.—A. P.-C.

Cleaning and Removing Puckers from Fourdriner Wires. V. T. R. Papeterie 56: 1286 (Dec. 25, 1934).—Cleaning is best carried out by means of a steam jet, say every 2 or 3 days. Puckers are best eliminated by carefully rubbing the surrounding portion of the wire with a very smooth wooden or glass block till it is uniformly stretched. —A. P.-C.

The Relative Location of Breast Roll, Slice and Apron, with Some Notes on the Related Problem of the Flow Box and Pond Height. J. B. Gough. Pulp Paper Can. 36: 64-68, 104 (Convention Issue, 1935).—A purely theoretical discussion.—A. P.-C.

Improvement to Rotary Cutters. A. Lambrette. Papeterie 57: 209 (March 10, 1935).—The bed knife is mounted vertically, and suitable springs and a plate of soft rubber are interposed between the knife and the frame on which it is mounted.—A. P.-C.

Winders for Small Rolls. Anon. Mon. Papeterie Belge 15: 103-107 (Feb., 1935).—A brief description of the various types of winders for small paper rolls constructed by Goebbel A.-G., Darmstadt, Germany.—A. P.-C.

Defiberizer. William G. Haigmaier and Ernest C. Shaw, assignors to Allis-Chalmers Manufacturing Co. U. S. pat. 1,999,607 (April 30, 1935).—This is an improvement on Shaw and Haigmaier's U. S. pat. 1,987,946, of Jan. 15, 1935, in which the defiberizing wire needles in the rotor are replaced by suitable teeth mounted in bars that are easily inserted in and removed from the rotor, thus facilitating replacements.—A. P.-C.

Acidproof Mortar for Lining Pulp Digesters, and Process of Lining Pulp Digesters. Karl Dietz and Karl Frank assignors to Pen-Chlor, Inc. U. S. pat. 1,996,859 (April 9, 1935).—Absolutely stable sulphite digester linings are built up by means of a mortar containing acidproof filling materials (*e.g.*, pulverized quartz), a phenol-aldehyde resin as binding agent (*e.g.*, bakelite A), and a substance having a condensing and hardening action on the phenol-aldehyde condensation product (*e.g.*, para-toluene-sulphochloride, barium oxide, lead oxide).

Method and Apparatus for Packing Wood Chips. Tetsuo Koda assignor to Chemipulp Process, Inc. U. S. pats. 1,998,874 and 1,998,875 (April 23, 1935).—A portable chip packer comprises an outer tube which can be supported in the neck of the digester, and an inner concentric tube, the chips passing through the space between the two tubes. Two series of (preferably steam) nozzles are provided, one near the top and the other near the bottom, the first giving a whirling motion to the mass of chips and the second making it assume a substantially conical form (the diameter of the base of which can be varied by adjusting the inclination of the nozzles).—A. P.-C.

Doctor Blade Structure. Fred Schwartz assignor to Fort Howard Paper Co. U. S. pat. 1,993,352 (March 5, 1935).—The doctor blade carries a rack bar which can be made to mesh with a pinion journaled in the doctor-blade holder, so that by engaging the rack with the pinion and operating the latter a blade can be replaced without stopping the machine. An adjustable jig is provided whereby the projection of the blade beyond the holder can be accurately regulated. The blade is mounted in such a way as to prevent it from springing when in use.—A. P.-C.

Apparatus for Making Mottled Paper. Olof H. Hedstrom, Jr. U. S. pat. 1,999,049 (April 23, 1935).—A trough is mounted above and across the fourdrinier wire. A liquid consisting of a filler of high opacity (such as zinc oxide, titanium oxide, their sulphides, or asbestine) is fed continuously to the trough, which is provided with a constant-level device. A multiple-pronged brush is rotated partly immersed in the trough and projects the filler on the paper in drops.—A. P.-C.

Paper Making Machine. Edward John Mellentine. U. S. pat. 1,998,381 (April 16, 1935).—The stock is delivered directly to the breast roll at constant flow through a specially designed stock-feeding nozzle which has a spread equal to the width of the breast roll and wire web and has a narrow opening which is adjustable at intervals along its width to insure micrometer metering of the flow therefrom. —A. P.-C.

Paper Making Apparatus. Lafayette C. Reynolds assignor to American Writing Paper Co., Inc. U. S. pat. 1,998,095 (April 16, 1935).—The head box and fourdrinier part are mounted on supporting rails and movable as a unit. The structure is pivoted for up and down movement so that the table may be inclined as desired.

Spray Tube. Walter Leupold assignor of one-half to Zellstofffabrik Waldhof. U. S. pat. 1,987,962 (Jan. 15, 1935).—A strainer or screen tube is interposed between an inner perforated supply pipe and an outer cover tube having a longitudinal slot; this renders it possible to obtain an unbroken uniform curtain of liquid.—A. P.-C.

Paper Making Machine. Samuel Amantea. U. S. pat. 2,000,006 (May 7, 1935).—The outlet or flow box is movably connected to the head box in such a way that it can be telescoped into the head box when changing the wire. The deckles consist of an angle iron on each side of the flow box, with a strip of flexible material extending downward from the lower edge of the angle iron to the fourdrinier wire.—A. P.-C.

Cylinder Paper Machine and Suction Roll for Use Therein. Charles L. Ellis assignor to Downingtown Manufacturing Co. U. S. pat. 1,998,046 (April 16, 1935). —The combined felt and web on leaving the last cylinder of a multi-cylinder machine is passed through a suction press. The suction roll is constructed so that it may be employed directly in engagement with the pulp web, there preferably being a small endless wire conveyor passing around the roll between the roll shell and the wet paper sheet.—A. P.-C.

Cylinder Paper Making Machine. George J. Forman. U. S. pat. 1,995,802 (March 26, 1935).—The vat is provided with two inlets, through which two different kinds of stock may be fed to the cylinder, the vat being con-

structed so that there is substantially no mixing of the two stocks. The white water which drains freely through the cylinder passes into a two-compartment chamber which keeps the white water from each stock separate. Above this chamber, inside the cylinder, is a large suction box and outside the latter are a number of pressure or couch rolls. —A. P.-C.

Paper Making Apparatus. Percy A. Jackson assignor to American Writing Paper Co. U. S. pat. 1,995,101 (March 19, 1935).—In order to obtain more uniform felting in all directions of the sheets formed on cylinder machines, the vats are vibrated relatively to the cylinder molds.—A. P.-C.

Board Machine. William H. Sutherland and Charles L. Ellis, Ellis assignor to Downingtown Manufacturing Co. U. S. pat. 1,996,661 (April 2, 1935).—Primary presses are eliminated and instead a number of extractor rolls are used, each comprising a heavily built cylinder mold above which is mounted a co-acting press roll.—A. P.-C.

Slitting Means. Robert McC. Johnstone assignor to Cameron Machine Co. U. S. pat. 1,998,929 (April 23, 1935).—A reconditioning device, consisting of a grooved roller, is mounted to engage the cutting edge of each score-cut slitter, the profile of the groove being such that its continued engagement with the cutting edge will roll the latter back to its correct shape and overcome the deformation of the slitter profile caused by its rolling engagenment with the platen roll.—A. P.-C.

Winding Machine. Nicholas Marcalus. U. S. pat. 1,986,680 (Jan. 1, 1935).—This is an improvement on Marcalus and Rausch's U. S. pat. 1,669,832.—In order to overcome difficulty experienced in withdrawing the spindle from a tightly wound roll, the spindle is made of two interfitting tapered sections provided with means for traversing them toward each other into winding position with the web between their tapered faces, and for withdrawing and separating the two sections when the roll is compactly wound.—A. P.-C.

Combined Slitting and Crushing Device. Robert McC. Johnstone and Leopold C. Borloz, assignors to Cameron Machine Co. U. S. pat. 2,000,175 (May 7, 1935).—Two crushing wheels are mounted, one on each side of the score-cut slitter, in order to crush the edges of the slit strips.—A. P.-C.

Conduit Valve for Paper Pulp Lines. Joseph Bélanger and Ernest Durnin. U. S. pat. 1,995,561 (March 26, 1935).—The invention provides a novel construction of a valve which can be incorporated in a stock line in place of a T-fitting for supporting a branch line. It is in the form of a double-T, so that the branch pipe can be connected directly to it, and the portion to which the branch is connected is provided wth a valve and seat, the valve being connected to and operated by a pneumatically—or hydraulically-operated piston.—A. P.-C.

Refining Pulp Screen Tailings. Anton J. Haug. Pulp Paper Can. 36; 231,233 (April, 1935); Paper Trade J. 100, No. 19; 16-18 (May 9, 1935).—A brief description of the principle and construction of the Haug refiner, and of some typical installations in North American pulp mills, together with a discussion of its performance and merits. —A. P.-C.

Centrifugal Clarifier and Separator. Louis Aoust. Fr. pat. 778,407 (Aug. 27, 1934).—In a centrifugal separator for removing heavy impurities a cylindrical bowl is mounted to rotate about a stationary vertical shaft. The impurities which collect on the inner wall of the bowl are continuously scraped and displaced towards the dirt outlet by means of a helical scraper rotating in the same direction as but at a different speed from the bowl itself. The cleaned stock is discharged at one end of the bowl and the impurities at the other end.—A. P.-C.

The Adka Patent Aerator Save-All. S. Anspach. World's Paper Trade Rev. 103; 420, 422, 462, 464, 500-504, 542, 544 (Feb. 8 and 15, 1935).—A description of the construction and operation of the machine, with a discussion of its advantages.—A. P.-C.

Fourdrinier Paper Making Machine. Ivar Wallquist. Brit. pat. 419,369 (Nov. 12, 1934).—Pulp at or near the flow box of the machine is subjected to water, steam, gas, air, vapor, etc., supplied from an outside source to produce transverse currents which are evenly distributed across the wire and tend to lay the fibers transversely of the wire.—A. P.-C.

The Neilson Paper Machine Slice. Anon. Pulp Paper Can. 36; 229-230 (April, 1935).—A description of the slice and discussion of its merits. It was developed in order to permit light or heavy weight papers to be made at low or high speeds on the same machine. It consists essentially in a vertical front plate to which is attached, at its lower edge, a vertical flexible knife edge lip, made of rubber of a density designed to give the utmost flexibility while at the same time being stiff enough to withstand the pressure of the stock behind the slice.—A. P.-C.

Admission of Stock to the Fourdrinier Wire. Arthur B. Green. Paper Trade J. 100, No. 18, 47-51 (May 2, 1935).—A brief review of the present state of the art followed by a summary consideration of the hydraulic principles involved. A plan is suggested for obtaining data supporting good engineering design and inlet practice.—A. P.-C.

Electric Drive for Cylinder Machine Wet End. G. A. Peterson. Paper Trade J. 100, No. 14, 43-44 (April 4, 1935).—A description of an electric drive for the wet end of a cylinder machine, with an outline of its merits.—A. P.-C.

Handling of Bearings When Re-Covering and Regrinding Press Rolls. Lloyd Hornsbostel and John Borland. Paper Trade J. 100, No. 16; 25-26 (April 18, 1935).—A description of recommended practice.—A. P.-C.

Recent Westinghouse Developments for the Pulp and Paper Industry. R. R. Baker. Paper Trade J. 100, No. 15; 20-24 (April 11, 1935).—A brief description of 1934 Westinghouse developments for pulp and paper mills: cylinder machine wet end drive, coating machine drives, centralized board mill control, log carriage, gearmotors, refiner drives, synchronous motors, "angle-switching," industrial analyzer, and motor circuit protection.—A. P.-C.

Power House

Practical Limits in the Use of High Pressure and Temperature in Turbines 1000 Kw. to 10,000 Kw. Ratings. W. T. Manning. Paper Trade J. 100, No. 13: 34-41 (March 28, 1936).—A discussion and review of high pressure and high temperature practice in steam turbines in public utility power plants, from the standpoint of the possibility of adapting it to paper mill power plant practice.—A. P.-C.

Practical Limits for Steam Pressure and Temperature in Paper Mill Power Plant Service. Kerr Atkinson. Paper Trade J. 100, No. 10: 37-43 (March 7, 1935). —A discussion of the setting in which the movement towards higher steam temperature and pressure must grow in industrial power plants, and more particularly in paper mill power plants.—A. P.-C.

Chemical Treatment and Filtration of River Water for Paper Mills. U. C. P. Papeterie 57: 10-17 (Jan. 10, 1935).—Attention is drawn to the advantages of Drechsler's process consisting in treating with alum and potassium permanganate and aerating vigorously. — A. P.-C.

IMPORTS OF PAPER AND PAPER STOCK

NEW YORK, BOSTON, PHILADELPHIA AND OTHER PORTS

NEW YORK IMPORTS

WEEK ENDING NOVEMBER 16, 1935

CIGARETTE PAPER

De Manduit Paper Corp., Pr. Harding, Havre, 175 cs.; R. J. Reynolds Tobacco Co., Pr. Harding, Havre, 75 cs.; Champagne Paper Corp., Ile de France, Havre, 257 cs.; Gluckman & Strauch, Washington, Havre, 1 cs.

WALL PAPER

W. H. S. Lloyd & Co., American Banker, London, 4 bls, 2 cs.; F. Blank, Washington, Havre, 8 cs.

WALL BOARD

Johaneson Wales & Sparre, Inc., Svaneholm, Gothenburg, 172 bdls.

NEWSPRINT

Jay Madden, Corp., Pr. Harding, Hamburg, 93 rolls; Jay Madden Corp., Sagoporack, Kotka, 343 rolls; N. Y. Evening Journal, Titania, Quebec, 2,829 rolls; Perkins Goodwin & Co., Washington, Hamburg, 302 rolls; Jay Madden Corp., Washington, Hamburg, 123 rolls; Lunham & Reeve, Inc., City of Fairbury, Kotka, 349 rolls; Lunham & Reeve, Inc., Svaneholm, Kotka, 340 rolls; Jay Madden Corp., Svaneholm, Kotka, 280 rolls; J. L. Hammet & Co., Svaneholm, Hallstavik, 143 rolls; Gilman Paper Co., Svaneholm, Hallstavik, 766 rolls; Brooklyn Daily Times, Svaneholm, Gothenburg, 323 rolls; Perkins Goodwin & Co., Deutschland, Hamburg, 258 rolls; Jay Madden Corp., Deutschland, Bremen, 131 rolls.

PRINTING PAPER

Japan Paper Co., American Banker, London, 2 cs.; Jay Madden Corp., City of Fairbury, Kotka, 54 bls., 91 rolls; Phoenix Shipping Co., Deutschland, Hamburg, 8 cs.; Dingelstedt & Co., Deutschland, Bremen, 23 cs.; E. Dietzgen & Co., Deutschland, Bremen, 5 cs.

WRAPPING PAPER

Jay Madden Corp., Pr. Harding, Hamburg, 143 rolls; ———, Navemar, Genoa, 6 cs.; ———, Ilsenstein, Antwerp, 19 cs.; ———, Washington, Hamburg, 2,689 rolls; H. Fuchs & Son, Washington, Hamburg, 26 rolls, 41 bls.; Walker Goulard Plehn Co., Washington, Hamburg, 348 rolls; M. M. Cohen, Washington, Hamburg, 159 rolls, 21 bls.

PACKING PAPER

Dingelstedt & Co., Pr. Harding, Hamburg, 11 cs.

KRAFT PAPER

Brooklyn Standard Bag Co., Svaneholm, Gothenburg, 936 rolls; Arkell Safety Bag Co., Svaneholm, Gothenburg, 63 rolls.

FILTER PAPER

H. Reeve Angel & Co., Inc., American Banker, London, 7 cs.; C. Schleicher & Schull Co., Deutschland, Hamburg, 5 cs.

DRAWING PAPER

H. Reeve Angel & Co., Inc., American Banker, London, 2 cs.; Winsor Newton, Inc., American Banker, London, 2 cs.; Keuffel & Esser Co., American Banker, London, 3 cs.; Keuffel & Esser Co., Washington, Hamburg, 27 cs.

METAL COATED PAPER

———, Pr. Harding, Hamburg, 5 cs.; K. Pauli Co., Deutschland, Bremen, 32 cs.

SURFACE COATED PAPER

Gevaert Co. of America, Black Heron, Antwerp, 40 cs.; P. Puttman, Ilsenstein, Antwerp, 5 cs.; C. Happel, Deutschland, Hamburg, 3 cs.; Globe Shipping Co., Deutschland ,Hamburg, 3 cs.; Globe Shipping Co., Deutschland, Bremen, 3 cs.

BASIC PAPER

Dingelstedt & Co., Deutschland, Bremen, 20 cs.

PHOTO PAPER

J. J. Gavin, Britannic, London, 6 cs.

DECALCOMANIA PAPER

B. F. Drakenfeld & Co., Lancastria, Liverpool, 9 cs. (duplex), 5 cs. (simplex).

DECALCOMANIAS

Sellers Transportation Co., Deutschland, Hamburg, 20 cs.

TISSUE PAPER

W. J. Byrnes, Britannic, London, 3 cs.

BLOTTING PAPER

J. & H. Berge, Lancastria, Liverpool, 2 cs.

STENCIL PAPER

International F'd'g Co., Ilsenstein, Antwerp, 3 cs.

WRITING PAPER

Globe Shipping Co., Washington, Havre, 4 cs.

CARD BOARD

Saentis, Inc., Deutschland, Hamburg, 67 cs.; American Express Co., Deutschland, Hamburg, 50 cs.

GUMMED PAPER

G. Gennert, Inc., Deutschland, Hamburg, 5 cs.

PAPER TUBES

———, Deutschland, Hamburg, 59 cs.

MISCELLANEOUS PAPER

Oxford University Press, Lancastria, Liverpool, 9 cs.; R. Wilson Paper Corp., Caledonia, Glasgow, 18 rolls; Shima Art Co., Inc., Asosan Maru, Yokohama, 3 cs.; A. Giese & Son, Ile de France, Havre, 12 bls.; Keller Dorian Paper Co., Ile de France, Havre, 4 cs.; ———, Kurama Maru, Kobe, 20 cs.; T. N. Fairbanks, Kurama Maru, Yokohama, 17 cs.; Horman Schutte Co., Excambion, Genoa, 28 cs.; Moller Products Corp., Soyo Maru, Kobe, 15 cs.; H. Reeve Angel & So., Inc., Soyo Maru, Kobe, 3 cs.; Japan Paper Co., Sanyo Maru, Kobe, 34 cs.; C. Schleicher & Schull Co., Deutschland, Hamburg, 5 cs.

RAGS, BAGGINGS, ETC.

Castle & Overton, Inc., Vinland, Buenos Aires, 94 bls. rags; ———, Lancastria, Liverpool, 79 bls. rags; E. J. Keller Co., Inc., Pr. Harding, ———, 487 bls. jute waste;

O'Brien Padawer, Inc., Eidsvold, Kobe, 275 bls. cotton waste; ———, Eidsvold, Kobe, 200 lbs. cotton waste; Royal Manfg. Co., Eidsvold, Kobe, 125 bls. cotton waste; E. J. Keller Co. Inc., Navemar, ———, 293 bls. rags; ———, Navemar, Barcelona, 88 bls. rags; Irving Trust Co., Navemar, Valencia, 386 bls. rags; Loumar Textile By-Products Co., Artigas, Manchester, 61 bls. bagging; A. W. Fenton, Inc., Artigas, Manchester, 8 bls. bagging; ———, Black Heron, Antwerp, 70 bls. cotton waste; Van Oppen & Co., Black Heron, Antwerp, 305 bls. bagging; Royal Manfg. Co., Black Heron, Antwerp, 40 bls. cotton waste; W. Steck & Co., Black Heron, Antwerp, 114 bls. jute waste; E. J. Keller Co. Inc., Black Heron, ———, 84 bls. bagging; Banco Coml Italiane Trust Co., Western Prince, Buenos Ayres, 12 bls. rags; Darmstadt Scott & Courtney, Excambion, Alexander, 74 bls. bagging; W. Steck & Co., Excambion, Alexandria, 237 bls. rags; E. J. Keller Co. Inc., Excambion, ———, 74 bls. rags; ———, Montreal City, Bristol, 240 bls. rags; G. M. Graves Co., Montreal City, Bristol, 140 bls. bagging; Van Oppen & Co., Schodack, Dunkirk, 53 bls. rags; Royal Manfg Co., Schodack, Dunkirk, 42 bls. cotton waste; Darmstadt Scott & Courtney, Schodack, Havre, 135 bls. bagging; E. J. Keller Co. Inc., Schodack, ———, 80 bls. rags; Windsor & Co., Soyo Maru, Kobe, 50 bls. rags; New England Waste Co., Soyo Maru, Kobe, 100 bls. bagging; Globe Sanitary Rag Co., Soyo Maru, Kobe, 75 bls. rags; E. A. Stone Co., Soyo, Maru, 100 bls. cotton waste; Royal Manfg. Co., Soyo Maru, Kobe, 150 bls. cotton waste; Bingham & Co., Soyo Maru, Kobe, 150 bls. cotton waste; Darmstadt Scott & Courtney, Lehigh, Manchester, 47 bls. rags, 369 bls. bagbing; ———, Lehigh, Liverpool, 34 bls. bagging.

BONE GLUE

———, Deutschland, Hamburg, 100 bags.

OLD ROPE

E. J. Keller Co. Inc., American Banker, ———, 84 coils; Chase National Bank, Montreal City, Bristol, 83 coils.

CHINA CLAY

English China Clays Sales Corp., Lancastria, Liverpool, 84 bags.

WOOD PULP

———, Pr. Harding, Hamburg, 100 bls. wood pulp, 10 tons; M. Sone, Pr. Harding, Hamburg, 672 bls. wood pulp, 101 tons; ———, Pr. Harding, Hamburg, 180 bls. wood pulp, 19 tons; Perkins Goodwin & Co., Murjek, Sundsvall, 450 bls. sulphate, 75 tons; Gottesman & Co. Inc., Murjek, Sundsvall, 1200 bls. Sulphite, 200 tons; Price & Pierce, Ltd., Murjek, Orviken, 450 bls. chemical pulp, 75 tons; Price & Pierce, Ltd., Murjek, Sandviken, 8,850 bls. sulphate, 600 bls. sulphite; Pagel Horton & Co. Inc., Murjek, Gefle, 125 bls. sulphite, 750 bls. sulphate; Bulkley Dunton & Co., Murjek, ———, 2,625 bls. wood pulp; Lagerloef Trading Co., Sagoporack, Wasa, 260 bls. mechanical pulp, 52 tons; Gottesman & Co. Inc., Sagoporack, Gdynia, 1,415 bls. wood pulp, 219 tons; Perkins Goodwin & Co., Sagoporack, Gdynia, 325 bls. wood pulp, 50 tons; ———, Sagoporack, Gdynia, 336 bls. wood pulp, 50 tons; E. J. Keller Co. Inc., Sagoporack, 336 bls. wood pulp, 50 tons; ———, Washington, Hamburg, 167 bls. wood pulp, 18 tons; Price & Pierce, Ltd., City of Fairbury, Stockholm, 150 bls. Sulphite, 25 tons; Lagerloef Trading Co., City of Fairbury, Wiborg, 836 bls. sulphite, 157 tons, 486 bls. sulphate, 81 tons, 2,280 bls. mechanical pulp, 457 tons; Gottesman & Co. Inc., City of Fairbury, Gdynia, 803 bls. wood pulp, 124 tons Johaneson Wales & Sparre, Inc., City of Fairbury, Gdynia, 336 bls. wood pulp, 50 tons; E. J. Keller Co. Inc., City of Fairbury, ———, 335 bls. wood pulp, 50 tons; Lagerloef Trading Co., Svaneholm, Viipuri, 1,356 bls. sulphite, 514 bls. sulphate; Lagerloef Trading Co., Svaneholm, Kotka, 175 bls. sulphite; Price & Pierce, Ltd., Svaneholm, Gothenburg, 1,000 bls. dry pulp; Johaneson Wales & Sparre, Inc., Svaneholm, Gothenburg, 748 bls. draft soda pulp; Castle & Overton, Inc., Deutschland, Hamburg, 2,903 bls. wood pulp, 580 tons; ———, Deutschland, Hamburg, 300 bls. wood pulp, 61 tons; Bank of N. Y. Trust Co., Deutschland, Hamburg, 120 bls. wood pulp, 24 tons; Bulkley Dunton & Co., Black Hawk, ———, 750 bls. wood pulp.

WOOD PULP BOARDS

Jay Madden Corp., City of Fairbury, Wiborg, 120 bls.; Jay Madden Corp., Svaneholm, Viipuri, 213 bls.; Jay Madden Corp., Svaneholm, Kotka, 101 bls.

ALBANY IMPORTS

WEEK ENDING NOVEMBER 16, 1935

———, Murjek, Sundsvall, 73 bdls. wall boards; Perkins Goodwin & Co., Murjek, Sundsvall, 5,850 bls. sulphite, 975 tons; Price & Pierce, Ltd., Murjek, Orviken, 2,025 bls. chemical, 337 tons; ———, Murjek, Iggesund, 1,000 bls. sulphite; ———, Murjek Gefle, 2,100 bls. sulphite; Price & Pierce, Ltd., Murjek Gefle, 450 bls. sulphite; Tradesman's Nat'l Bank Trust Co., Murjek, Gefle, 350 bls. sulphate; Pagel Horton & Co., Inc., Murjek, Gefle, 2,125 bls. sulphate, 11,250 bls. sulphite; Atterbury Bros. Inc., Georgia, Oslo, 6,300 bls. sulphite, 1,066 tons; Irving Trust Co., Georgia, Oslo, 2,750 bls. chemical, 558 tons; Perkins Goodwin & Co., Georgia, Drammen, 600 bls. sulphite, 121 tons; Price & Pierce, Ltd., Georgia, Oslo, 2,000 bls. sulphite, 431 tons; J. Anderson & Co., Georgia, Oslo, 125 bls. sulphite, 25 tons; ———, Georgia, Sarpsborg, 4,800 bls. sulphite, 812 tons.

PORTLAND IMPORTS

WEEK ENDING NOVEMBER 16, 1935

Bulkley Dunton & Co., Lagaholm, ———, 3,140 bls. wood pulp; Bulkley Dunton & Co., Dalhem, ———, 1,500 bls. wood pulp; Gottesman & Co. Inc., Dalhem, Sweden, 4,500 bls. wood pulp; Gottesman & Co., Inc., Sydland, Sweden, 1,750 bls. wood pulp.

BOSTON IMPORTS

WEEK ENDING NOVEMBER 16, 1935

G. F. Malcolm, Inc., Lancastria, Liverpool, 26 cs. tissue paper; Royal Manfg. Co., Eidsvold, Kobe, 75 bls. cotton waste; Atkinson Haserick & Co., Excambion, Genoa, 10 cs. paper; Leigh Textile Co., Schodack Dunkirk, 45 bls. cotton waste; ———, Schodack, Havre, 100 bls. bagging; Ayres W. C. Jones Co., Schodack, Havre, 87 bls. cotton waste; J. J. Ryan, Soyo Maru, Kobe, 200 bls. cotton waste; Parsons & Whittemore, Inc., Chemnitz, ———, 500 bls. wood pulp; Parsons & Whittemore, Inc., Topeka, ———, 150 bls. wood pulp; Parsons & Whittemore, Inc., Hagen, ———, 1,000 bls. wood pulp; Parsons & Whittemore, Inc., Heddernheim, ———, 150 bls. wood pulp.

PHILADELPHIA IMPORTS

WEEK ENDING NOVEMBER 16, 1935

Castle & Overton, Inc., Vinland, Buenos Ayres, 55 bls. rags; J. Anderson & Co., Sagoporack, Helsingfors, 600 bls. mechanical pulp, 101 tons; Lagerloef Trading Co., Sagoporack, Wasa, 130 bls. mechanical pulp, 26 tons; J. M. Hagy Waste Works, Eidsvold, Kobe, 116 bls. rags; Royal Manfg. Co., Eidsvold, Kobe, 25 bls. cotton waste; E. J. Keller Co., Inc., Eidsvold, ———, 600 bls. rags; E. J. Keller Co. Inc., Navemar, ———, 49 bls. rags; ———, Navemar, Genoa, 13 cs. packing paper; ———, Excambion, Alexandria, 38 bls. rags; English China Clays Sales Corp., Montreal City, Bristol, 51 tons china clay; Gottesman & Co. Inc., City of Fairbury, Helsingfors, 500 bls. mechanical pulp; J. W. Hampton Jr. Co., City of Fairbury, Kotka, 598 rolls newsprint; Jay Madden Corp., City of Fairbury,

(Continued on page 55)

New York Market Review

Office of the PAPER TRADE JOURNAL,
Wednesday, November 20, 1935.

Trading in the local paper market continues brisk. Demand for the various standard grades of paper is well up to average for the season. Sales forces of the leading paper houses are generally optimistic over the outlook for the balance of the year. Prices are generally well sustained.

The newsprint paper market is practically unchanged. Media Records figures show that newspaper advertising lineage in large cities rose 5.9 per cent in October, as compared with the level of October, 1934. Production of newsprint paper is being maintained in sufficient volume to meet current requirements.

Steadiness prevails in the fine paper market. Demand for book, cover, bond and ledger papers in satisfactory. Prices are steady to firm. Tissues are moving into consumption freely. The coarse paper market is holding up well. Wrapping paper and kraft specialties are in seasonal request.

Mechanical Pulp

The position of the ground wod pulp market is considered sound. Manufacturing operations in North America and abroad are keyed to consumption, as far as possible, and there are no undue accumulations at the mills. Prices are holding to previously quoted levels and reports of shading are infrequent.

Chemical Pulp

Conditions in the chemical pulp market are improving. The better grades of domestic and imported bleached sulphite are now quoted at from $2.60 to $2.67½ per 100 pounds, on dock, Atlantic, Gulf and West Coast ports. Kraft pulp continues firm and is still quoted at from $1.80 to $1.85.

Old Rope and Bagging

The old rope market is moderately active. Demand for domestic and foreign old manila rope is rather light. Mixed strings are moving in fair volume. Old rope prices remain unchanged. The bagging market is exhibiting a strong undertone. Prices on both scrap and gunny bagging are firm.

Rags

Sentiment in the domestic rag market is improving. Demand for new cotton rags is persistent. Offerings of No. 1 white shirt cuttings and blue overall cuttings are limited and prices firm. Roofing grades are in steady request, with quotations holding to former levels. No radical changes transpired in the imported rag market.

Waste Paper

The better grades of paper stock are in seasonal request, especially white envelope cuttings, and hard and soft white shavings. Book stock is fairly steady. Board mill demand for the lower grades is somewhat restricted. A revival of trading is anticipated in the near future in some quarters. Prices generally remain unchanged.

Twine

Business in the local twine market is quite active. Demand for the various varieties of twine is gradually expanding with the approach of the Yuletide holidays and the increased demand for wrapping paper, etc. Recently advanced quotations on hard and soft fiber twines are being maintained.

IMPORTS OF PAPER AND PAPER STOCK

(Continued from page 54)

Kotka, 160 bls. wood pulp boards; Lagerloef Trading Co., City of Fairbury, Kotka, 175 bls. wood pulp boards; Johaneson Wales & Sparre, Inc., City of Fairbury, Gdynia, 1,220 bls. wood pulp; E. J. Keller Co. Inc., Soyo Maru, ———, 100 bls. rags; A. W. Fenton, Inc., Lehigh, Manchester, 39 bls. bagging; Bulkley Dunton & Co., Ditmar, Koel, ———, 625 bls. wood pulp.

WILMINGTON IMPORTS

WEEK ENDING NOVEMBER 16, 1935

Lagerloef Trading Co., City of Fairbury, Helsingfors, 2,854 bls. sulphite, 484 tons; Lagerloef Trading Co., City of Fairbury, Wiborg, 5,135 bls. sulphite, 1,022 tons; Castle & Overton, Inc., City of Fairbury, Wiborg, 3,539 bls. wood pulp, 708 tons; E. J. Keller Co. Inc., City of Fairbury, ———, 334 bls. wood pulp.

BALTIMORE IMPORTS

WEEK ENDING NOVEMBER 16, 1935

D. M. Hicks, Inc., Sagoporack, Helsingfors, 750 bls. mechanical pulp, 152 tons; Lagerloef Trading Co., Sagoporack, Helsingfors, 500 bls. sulphate, 100 tons; Lagerloef Trading Co., Sagoporack, Wasa, 2,210 bls. mechanical pulp 442 tons, 640 bls. sulphite 106 tons; Lagerloef Trading Co., Sagoporack, Wiborg, 162 bls. sulphate, 27 tons; Castle & Overton, Inc., Sagoporack, Wiborg, 1,699 bls. wood pulp, 339 tons; Lagerloef Trading Co., Sagoporack, Kotka, 883 bls. sulphite 153 tons, 500 bls. sulphate 100 tons, 780 bls. mechanical pulp 156 tons; Jay Madden Corp., Sagoporack, Kotka, 407 rolls newsprint; Johaneson Wales & Sparre, Inc., Sagoporack, Gdynia, 1,500 bls. wood pulp, 150 tons; M. Sone, Sagoporack, Gdynia, 600 bls. wood pulp, 60 tons; Perkins Woodwin & Co., Sagoporack, Gdynia, 335 bls. wood pulp, 51 tons; Lagerloef Trading Co., Sagoporack, Wiborg, 3,338 bls. sulphite, 667 tons; Congoleum Nairn Co., Black Heron, Antwerp, 208 bls. rags; ———, Kurama Maru, Kobe, 110 bls. rags; American Newspapers, Inc., Titania, Quebec, 3,114 rolls newsprint; Bulkley Dunton & Co., Ditmar Koel, ———, 7,250 bls. wood pulp; Bulkley Dunton & Co., City of Baltimore, ———, 600 bls. wood pulp; Parsons & Whittemore, Inc., City of Norfolk, ——— 500 bls. wood pulp; Parsons & Whittemore, Inc., City of Havre, 160 bls. wood pulp.

NEWPORT NEWS IMPORTS

WEEK ENDING NOVEMBER 16, 1935

Bulkley Dunton & Co., Gonzenheim, ———, 3,000 bls. wood pulp; Parsons & Whittemore, Inc., City of Norfolk, ———, 300 bls. wood pulp.

Miscellaneous Markets

Office of the PAPER TRADE JOURNAL,
Wednesday, November 20, 1935.

BLANC FIXE.—Steadiness prevails in the blanc fixe market. Prices are holding to formerly quoted levels. The pulp is quoted at from $42.50 to $45 per ton, in bulk; while the powder is selling at from 3½ to 3¾ cents per pound, in barrels, at works.

BLEACHING POWDER.—The bleaching powder market is exhibiting a strong undertone. Shipments against contract are moving in good volume. Prices continue firm. Bleaching powder is quoted at from $1.90 to $2.15 per 100 pounds, in drums, at works.

CASEIN.—The casein market is strong. Domestic standard ground is quoted at 14½ and finely ground at 15; Argentine standard ground at 14¼ and finely ground at 14¾; French standard ground at 14½ and finely ground at 15 cents per pound, all in bags, car lot quantities.

CAUSTIC SODA.—Sentiment in the caustic soda market is optimistic. The contract movement is normal. Prices remain unchanged. Solid caustic soda is quoted at from $2.60 to $3.10; the flake and ground at from $3 to $3.05 per 100 pounds, at works.

CHINA CLAY.—The china clay market is active. Shipments against contract are moving freely. Prices are firm. Imported china clay is quoted at from $13.50 to $21 per ton, ship side; domestic paper making clay at from $6.50 to $12 per ton, at mine.

CHLORINE.—Demand for chlorine is persistent. As announced last week, producers have advanced the price for the forthcoming year $3 per ton. Chlorine is quoted at from $2 to $2.40 per 100 pounds, in tanks, or multi-unit cars, in ton lots, or over, at works.

ROSIN.—The rosin market is inclined to fluctuate. Paper making gum rosin is quoted at $4.50 and wood rosin at $4.75 per 280 pounds, gross weight, in barrels, at Savannah. Seventy per cent rosin size is selling at $2.60 per 100 pounds, in tank cars, at works.

SALT CAKE.—Conditions in the salt cake market are satisfactory. The contract movement is regular. Salt cake is quoted at from $12 to $13; chrome salt cake at from $11 to $12 per ton, at works. Imported salt cake at from $12 to $13 per ton, ship side.

SODA ASH.—The soda ash market is displaying strength. Supplies are moving into consumption at a steady pace. Prices are firm. Quotations on soda ash, in car lots, at works, per 100 pounds, are as follows: In bulk, $1.05; in bags, $1.20; in barrels, $1.50.

STARCH.—Paper mill demand for starch is mainly routine. No further price changes have been reported since last week. Special paper making starch is quoted at $3.44 per 100 pounds, in bags; and at $3.71 per 100 pounds, in barrels, at works.

SULPHATE OF ALUMINA.—The sulphate of alumina market is firm. Prices are holding to formerly quoted levels. Commercial grades are offered at from $1.35 to $1.50; iron free at from $1.90 to $2.05 per 100 pounds, in barrels, at works.

SULPHUR.—The sulphur market is steady. Sulphur is quoted at $18 per long ton on orders of 1,000 tons or over, on yearly contracts, and at $20 per ton on any smaller quantity over that period. On spot and nearby carloads, the quotation is $21 per ton.

TALC.—The position of the talc market is practically unchanged. Prices are generally holding to schedule. Domestic talc is quoted at from $16 to $18 per ton, at eastern mines, while imported talc is selling at from $23 to $30 per ton, on dock.

Market Quotations

PAPER

Fine Papers

Rag Content Bond & Ledgers
Delivered Zone 1

	Bonds	Ledgers
100% Rag Extra No. 1	.36	.37
100% Rag	.28	.29
75% Rag	.21	.22
65% Rag	.18	.19
50% Rag	.15	.16
25% Rag	.12½	.13½

Sulphite Bond & Ledgers
Delivered Zone 1

	Bonds	Ledgers
No. 1 Sulphite	7.75	8.75
No. 2 Sulphite	6.75	7.75
No. 3 Sulphite	6.00	7.00
No. 4 Sulphite	5.50	6.50

Book. Cased—			
S. & S. C.	5.35	@	5.75
S. & S. C. Litho.	5.60	@	6.00
M. F.	5.10	@	5.50
Coated and Enamel	5.90	@	6.55
Coated Litho	5.90	@	6.55
Tissues—Per Ream—			
White No. 1	.82½	@	.85
White No. 2	.67½	@	—
Anti-Tarnish M. G. only	1.00	@	—
Colored	.85	@	—
Kraft	.70	@	—
Manila	.67½	@	.70
Manila—			
No. 1 Jute	9.00	@	9.25
No. 2 Jute	7.75	@	8.50
No. 1 Wood	4.00	@	5.25
No. 2 Wood	3.50	@	4.00
Butchers	4.00	@	4.50
Fibre Papers—			
No. 1 Fibre	4.25	@	5.50
No. 2 Fibre	4.00	@	4.75
Common Bogus	1.50	@	3.00
Screenings	2.50	@	3.50
Glassine—			
Bleached	.11	@	—
Unbleached	.09	@	—

(The following Quotations are Delivered New York)

News, per ton—			
Roll, contract	40.00	@	—
Rolls, spot	40.00	@	—
Sheets	45.00	@	—
Kraft—			
No. 1 Northern	4.12½	@	4.75
Standard	4.00	@	—
Southern	3.87½	@	—
Boards—per ton—			
News	39.00	@	41.50
Chip	37.50	@	40.00
Sgl. Mla. Lt. Chip	42.50	@	45.00
Jute Lined Chip	42.50	@	45.00
Kraft Liners	52.50	@	—
White Patent Coated	55.00	@	57.50
Binders Boards	67.00	@	75.00

Mechanical Pulp

(On Dock, Atlantic Ports)

No. 1 Imported—			
Moist	21.00	@	22.00
Dry	21.00	@	22.00
(F. o. b. Mill)			
No. 1 Domestic and Canadian	18.00	@	24.00

Chemical Pulp

(On Dock, Atlantic, Gulf and West Coast Ports)

Bleached Sulphite (Domestic and Foreign)—			
Division 1	2.60	@	2.67½
Division 2	2.55	@	—*
Division 3	2.50	@	—*
Prime Qualities—			
Class 1. All Prime Easy Bleaching	2.05	@	—*
Other Than Easy Bleaching—			
Class 2. Higher than Standard	2.00	@	—*
Class 3, Standard	1.95	@	—*
Class 4. Lower than Standard	1.90	@	—*
(On Dock, Atlantic Ports)			
Kraft No. 1	1.75	@	1.80
Kraft No. 2	1.60	@	1.70
(F. o. b. Pulp Mill)			
Kraft Domestic	1.75	@	1.80
(Delivered)			
Soda Bleached	2.50	@	—

* Add 60 Cents per short ton, dock charges, for Albany; $2.00 for Lake Ports East and $3.00 for Lake Ports West of Mackinac Straits.

Domestic Rags

New Rags
(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—			
New White, No. 1	6.65	@	6.90
Silesias No. 1	4.50	@	4.75
New Unbleached	7.00	@	7.25
New Soft Blacks	3.00	@	3.25
Blue Overall	4.75	@	5.00
Fancy	2.50	@	2.75
Washables	1.90	@	2.15
Mixed Khaki Cuttings	3.00	@	3.25
O. D. Khaki Cuttings	3.75	@	4.00
Men's Corduroy	1.75	@	1.85
New Mixed Blacks	2.50	@	2.75

Old Rags

White, No. 1—			
Repacked	3.00	@	3.50
Miscellaneous	2.75	@	3.25
White, No. 2—			
Repacked	1.75	@	2.25
Miscellaneous	1.50	@	1.75
Thirds and Blues—			
Repacked	1.75	@	1.85
Miscellaneous	1.45	@	1.55
Roofing Rags—			
No. 1	1.55	@	1.60
No. 2	1.35	@	1.40
No. 3 (bagging)	1.00	@	1.05
No. 4	.95	@	1.00
No. 5A	.90	@	1.00

Foreign Rags

New Rags

New Dark Cuttings	2.00	@	2.25
New Mixed Cuttings	1.80	@	1.90
New Light Silesias	3.75	@	4.00
Light Flannelettes	4.00	@	4.25
New White Cuttings	6.50	@	6.75
New Light Oxfords	3.25	@	3.50
New Light Prints	2.75	@	3.00

Old Rags

No. 1 White Linens	7.50	@	8.00
No. 2 White Linens	6.50	@	7.00
No. 3 White Linens	4.50	@	5.00
No. 4 White Linens	2.25	@	2.50
No. 1 White Cotton	4.25	@	4.75
No. 2 White Cotton	3.25	@	3.75
No. 3 White Cotton	2.50	@	2.75
No. 4 White Cotton	1.90	@	2.15
Extra Light Prints	2.00	@	2.25
Ord. Light Prints	1.75	@	1.85
Med. Light Prints	1.55	@	1.65
Dutch Blue Cottons	2.00	@	2.25
French Blue Linens	2.30	@	2.40
German Blue Linens	2.15	@	2.25
German Blue Cottons	1.70	@	1.80
Checks and Blues	1.70	@	1.80
Linsey Garments	1.95	@	2.05
Dark Cottons	1.50	@	1.60
Old Shopperies	1.00	@	1.05
New Shopperies	1.25	@	1.35
French Blues	2.00	@	2.25

Old Rope and Bagging

(Prices to Mill f. o. b. N. Y.)

Gunny No. 1—			
Foreign	2.00	@	2.10
Domestic	1.75	@	1.85
Wool Tares, light	1.70	@	1.75
Wool Tares, heavy	2.00	@	2.15
Bright Bagging	1.75	@	1.80
Manila Rope—			
Foreign	1.85	@	2.00
Domestic	1.75	@	2.00
Mixed Strings	.85	@	1.00
New Burlap Cut	2.00	@	2.25
Hessian Jute Threads—			
Foreign	2.60	@	2.75
Domestic	2.80	@	3.00

Old Waste Papers

(F. o. b. New York)

Shavings—			
White Envelope Cuttings	2.45	@	2.55
Ordinary Hard White No. 1	2.10	@	2.15
Hard White No. 2	1.90	@	2.00
Soft White No. 1	1.80	@	1.90
Flat Stock—			
Stitchless	.65	@	.75
Over issue Mag	.65	@	.75
Solid Flat Book	.55	@	.60
Crumpled No. 1	.35	@	.40
Solid Book Ledger	1.50	@	1.65
Ledger Stock	.85	@	.90
New B. B. Chips	.30	@	.35
Manilas—			
New Env. Cut	1.70	@	1.80
New Cuttings	1.35	@	1.45
Bogus Wrapper	.40	@	.50
Old Kraft Machine—			
Compressed bales	1.10	@	1.20
News—			
No. 1 White News	1.45	@	1.50
Strictly Overissue	.50	@	.55
Strictly Folded	.32½	@	.35
No. 1 Mixed Paper	.25	@	.27½

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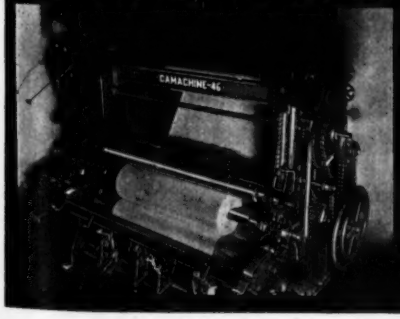

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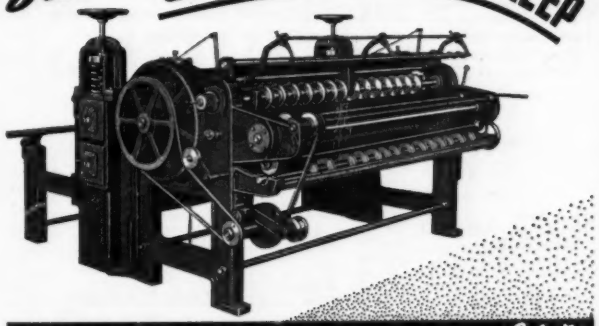

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(F. o. b. Mill)

(Soft Fibre)

Coarse Polished—

India	.12¾	@	.15¼
Belg. White Hemp	.13¾	@	.14¼
India Compress	.13¾	@	.13¾

Fine Polished—

Fine India	.21	@	.23
Special	.19	@	.21

Unpolished—

Box	.11½	@	.12
Paper Makers	.09	@	.13½
Tube Rope	.09½	@	.14½
Wall Paper	.10½	@	.14
Wrapping	.14½	@	.20½
Special	.14½	@	.15
Soft Fiber Rope	.11¾	@	.12¼

(Hard Fibre)

Bond	.11	@	.19½
Anchor	.10½	@	.12

CHICAGO

Paper

(F. o. b. Mill)

Rag Bond	.12	@	.50
Water Marked Sulphite Bond	.06¾	@	.11
Sulphite Bond	.05½	@	.11
Superfine Writing	.18	@	.24
No. 1 M. F. Book	.06½	@	.07¼
No. 2 M. F. Book	.05¼	@	.06¼
No. 1 S.&S.C. Book	.06¾	@	.07¾
No. 2 S.&S.C. Book	.05¾	@	.06½
Coated Book	.07	@	.12
Coated Label	.07	@	.08½
No. 1 Manila	.04¾	@	.05¾
No. 1 Fibre	.04¾	@	.05¼
No. 2 Manila	.04¼	@	.04¾
Butcher's Manila	.03¼	@	.03¾
No. 1 Kraft	4.75	@	5.00
Southern Kraft	3.88	@	4.25
No. 2 Kraft	3.88	@	4.25
Wood Tag Boards	.04¼	@	.06¼
Sulphite Screenings	.03	@	.03¼
Manila Tissue	.05¾	@	.07
White Tissue	.07	@	.09

(Delivered Central Territory)

News, per ton—			
Rolls, contract	41.00	@	—
Sheets, open	46.00	@	48.50
Boards, per ton—			
Plain Chip	46.50	@	—
Solid News	50.00	@	—
Manila Lined Chip	55.00	@	—
Patent Coated	65.00	@	—
Container Lined—			
85 Test, per 1000 sq. ft.			1.70
100 Test, per 1000 sq. ft.			1.85

Old Papers

(F. o. b. Chicago)

Shavings—			
No. 1 White Envelope Cuttings	1.70	@	2.00
No. 1 Hard White	1.40	@	1.65
No. 1 Soft White	1.25	@	1.50
Ledger & Writings	.70	@	.80
Solid Books	.60	@	.70
Blanks	1.00	@	1.05
Krafts	.80	@	.90
New Kraft Cuts	1.20	@	1.30
Manila Env. Cuts	1.25	@	1.30
Ex. No. 1 Manila	.90	@	1.00
Print Manila	.40	@	.50
Overissue News	.40	@	.45
Old Newspapers—			
No. 1	.30	@	.35
No. 1 Mixed Paper	.25	@	.30
Roofing Stocks—			
No. 1	30.00	@	—
No. 2	28.00	@	—

PHILADELPHIA

Paper

(Delivered Philadelphia)

Bonds	.05-9/10	@	.38
Ledgers	.06-9/10	@	.40
Writings—			
Fine No. 3	.05	@	.06
Superfine	.10	@	.12
Extra Fine	.15	@	.26
Fine	.15	@	.26
Fine, No. 2	.10	@	.25
Book, M. F.	.05¼	@	.06¼
Book, S. S. & C.	.05½	@	.07½
Book, Coated	.06½	@	.09
Coated Lithograph	.06¾	@	.08½
Label	.07	@	.11
No. 1 Jute Manila	6.25	@	—
Manila Sul., No. 1	5.25	@	—
Manila No. 2	3.75	@	—
No. 1 Kraft	5.00	@	—
Southern Kraft	4.75	@	—
Common Bogus	.03	@	—
News Print Rolls	40.00	@	—
Straw Board	40.00	@	45.00
News Board	40.00	@	—
Chip Board	37.50	@	—
Wood Pulp Board	70.00	@	85.00
Binder Boards—			
No. 1, per ton	75.00	@	80.00
No. 2, per ton	70.00	@	75.00
Carload lots	65.00	@	70.00
Tarred Felts—			
Regular	52.25	@	54.25
Slaters (per roll)	.84	@	.94
Best Tarred, 1-ply (per roll)	1.95	@	2.10
Best Tarred, 2-ply (per roll)	1.40	@	1.75
Best Tarred, 3 ply	2.00	@	2.25

Domestic Rags (New)

(Price to Mill, f. o. b. Phila.)

Shirt Cuttings—			
New White, No. 1	.06¼	@	—
New White, No. 2	.04½	@	—
Light Silesias	.04	@	—
Silesias, No. 1	.04	@	—
Black Silesias, soft	.03	@	—
New Unbleached	.06	@	—
Washable, No. 1	.01¾	@	—
Blue Overall	.05	@	.05½
Cottons—According to grades—			
Washable, No. 2	.02½	@	.04½
New Blue	.01½	@	—
Fancy	.01½	@	—
New Black Soft	.02	@	.03¼
New Light Seconds	.04	@	—
New Dark Seconds	1.10	@	—
Khaki Cuttings—			
No. 1 O. D.	.04	@	—
No. 2 Mixed	.03	@	.04
Corduroy	.01¾	@	—
New Canvas	.03½	@	.04½
New Black Mixed	.02¼	@	.02½

Domestic Rags (Old)

White No. 1—			
Repacked	3.25	@	3.50
Miscellaneous	2.00	@	3.00
Thirds and Blues—			
Miscellaneous	1.50	@	1.75
Repacked	2.25	@	2.50
Black Stockings (Export)	4.00	@	4.50
Roofing Stock—			
Foreign No. 1	.90	@	1.10
Repacked	1.30	@	1.50

Bagging

(F. o. b. Phila.)

Gunny, No. 1—			
Foreign	1.50	@	—
Domestic	1.75	@	2.00
Manila Rope	2.50	@	—
Sisal Rope	.75	@	1.00
Mixed Rope	1.00	@	1.10
Scrap Burlaps—			
No. 1	1.75	@	1.80
No. 2	.80	@	.90
Wool Tares, heavy	2.75	@	—
Mixed Strings	1.00	@	1.10
No. 1 New Light Burlap	2.25	@	2.50
New Burlap Cuttings	2.00	@	2.25

Old Papers

(F. o. b. Phila.)

Shavings—			
No. 1 Hard White	2.25	@	2.30
No. 2 Hard White	1.90	@	2.00
No. 1 Soft White	1.80	@	1.85
No. 2 Soft White	1.25	@	1.30
No. 1 Mixed	—	@	.75
Solid Ledger Stock	1.50	@	1.60
Writing Paper	1.00	@	1.10
No. 1 Books, heavy	.55	@	.60
No. 1 New Manila	1.50	@	—
Print Manila	.50	@	.60
Container Manila	—	@	.50
Old Kraft	1.00	@	—
No. 1 Mixed Paper	—	@	.30
Straw Board Chip	.40	@	—
Binders Board Chip	.40	@	—
Corrugated Board	.55	@	—
Overissue News	.60	@	—
Old Newspapers	.40	@	—

BOSTON

Paper

(F. o. b. Mill)

Ledgers—			
Sulphite	.06	@	.12½
Rag Content	.12	@	.30
All Rag	.36	@	.52½
Bonds—			
Sulphite	.07¼	@	.11
Rag Content	.12	@	.30
All Rag	.36	@	.65
Writings	.06½	@	.20
Superfines	.11	@	.31
Book, Super	.06	@	.09
Book, M. F.	.05½	@	.08½
Book, Coated	.08½	@	.18
Coated Litho	.09	@	.12
Label	.09½	@	.15
Jute Manila No. 1	.11	@	.13
Manila, Sul. No. 1	.04¼	@	.06½
Manila, Sul. No. 2	.03¼	@	.04½
No. 1 Kraft	.04¾	@	.05
No. 2 Kraft	.04½	@	.04¾
(F. o. b. Boston)			
Southern Kraft	.03¾	@	.04½
(F. o. b. destination in carload lots, f. o. b. mill in less than carload lots)			
Common Bogus	.02	@	.02¾
(Delivered New England points)			
News Print Rolls	39.50	@	—
Straw Board, rolls.009	—	@	35.00
Straw Board in Sheets, basis 35s to 70s	—	@	40.00
Filled News Board	40.00	@	45.00
Chip Board	37.50	@	40.00
Chip Board (Creasing)	37.50	@	40.00
Single Manila Lined Chip	47.50	@	52.50
Single White, Patent Coated News Board (Bender)	55.00	@	65.00
Wood Pulp Board	70.00	@	75.00
Binder Boards (Standard Grade)	67.00	@	75.00

Old Papers

(F. o. b. Boston)

Shavings—			
No. 1 Hard White	2.00	@	2.20
No. 1 Soft White	1.75	@	1.90
No. 2 Mixed	.75	@	.80
Solid Ledger Books	1.40	@	1.50
Overissue Ledger Stock	1.15	@	1.30
Mixed Ledgers	.85	@	.90
No. 1 Books, heavy	.55	@	.65
No. 1 Books, light	.50	@	.60
Crumpled Stitchless Book Stock	.50	@	.60
Manila Env. Cuttings	1.30	@	1.40
No. 1 Old Manila	.60	@	.65
White Blank News	1.25	@	1.30
No. 1 Kraft	—	@	1.00
Mixed Papers	.22½	@	.25
Print Manila	.50	@	.60
Container Manilas	.27½	@	—
Old Newspapers	.25	@	.27½
Overissue News	—	@	.35
Box Board Chips	—	@	.25
Corrugated Boxes	.35	@	.37½
Kraft corrugated boxes	.85	@	—
Screening Wrappers	.40	@	.45

Bagging

(F. o. b. Boston)

Manila Rope—			
Foreign	2.10	@	—
Domestic	2.10	@	2.25
Transmission Rope	.90	@	1.00
Jute Rope	1.60	@	1.75
Jute Carpet Threads	.65	@	.70
Gunny No. 1—			
Foreign	2.00	@	—
Domestic	1.75	@	1.80
Bleachery Burlap	4.00	@	4.50
Scrap Burlap—			
Foreign	1.85	@	1.90
Domestic	1.60	@	1.75
Scrap Sisal	1.50	@	1.60
Scrap Sisal for Shredding	1.80	@	1.90
Wool Tares, heavy	1.90	@	2.00
New Burlap Cuttings	1.75	@	1.90
Australian Wool Pouches	3.00	@	3.25
Heavy Baling Bagging	2.50	@	2.75
Paper Mill Bagging	1.25	@	—
Bagging No. 2	.90	@	.95

Domestic Rags (New)

(F. o. b. Boston)

Shirt Cuttings—			
New Light Printa	.01¾	@	.02
New White No. 1	.06	@	.06¼
New White No. 2	.04	@	.04¼
Silesias No. 1	.04½	@	—
New Black Silesias	.02½	@	.03
Soft Unbleached	.06½	@	.06¾
Blue Cheviot	—	@	4.65
Fancy	.0225	@	.023
Washable	.0165	@	.0170
Cottons—According to grades—			
Blue Overalls	.04¾	@	.05
New Black, soft	.04	@	.04¾
Khaki Cuttings	.03¾	@	.04
O. D. Khaki	.03¼	@	.04
Corduroy	.01¾	@	.02
New Canvas	—	@	.03
B.V.D. Cuttings	—	@	.06¼
Paper Mill Bagging	1.10	@	1.25

Domestic Rags (Old)

(F. o. b. Boston)

Canvas	.04½	@	—
White No. 1—			
Repacked	—	@	2.75
Miscellaneous	2.50	@	2.75
White No. 2—			
Repacked	1.90	@	2.00
Miscellaneous	2.00	@	2.25
Twos and Blues	1.50	@	2.00
Thirds and Blues—			
Repacked	1.37½	@	1.75
Miscellaneous	1.25	@	1.62½
Black Stockings	2.50	@	3.00
Roofing Stock—			
No. 1	1.45	@	1.50
No. 2	1.25	@	1.30
No. 3	1.05	@	1.10

Foreign Rags

(F. o. b. Boston)

Dark Cottons	1.55	@	1.70
New White Shirt Cuttings	5.50	@	6.00
Dutch Blues	2.25	@	2.50
New Checks & Blues	2.50	@	3.00
Old Fustians	1.90	@	—
Old Linsey Garments	2.10	@	—
New Silesias	4.50	@	4.75

TORONTO

Paper

(F. o. b. Mill)

Bond—			
No. 1 Sulphite	.11	@	—
No. 2 Sulphite	.08½	@	—
No. 1 Colored	.12	@	—
No. 2 Colored	.09	@	—
Ledgers (sulphite)—			
Ledgers, No. 1	.34½	@	—
Ledgers, No. 2	.25½	@	—
Writing	.09	@	.09½
Book—			
No. 1 M. F. (Carloads)	6.50	@	—
No. 2 M. F. (Carloads)	6.00	@	—
No. 3 M. F. (Carloads)	6.00	@	—
No. 1 S. C. (Carloads)	7.00	@	—
No. 2 S. C. (Carloads)	6.50	@	—
No. 3 S. C. (Carloads)	6.50	@	—
No. 1 Coated and Litho	12.00	@	—
No. 2 Coated and Litho	10.50	@	—
No. 3 Coated and Litho	9.50	@	—
Coated tinted	13.00	@	—
Wrapping—delivered—			
Rag Brown	4.75	@	—
White Wrap	3.50	@	—
"B" Manila	5.25	@	—
No. 1 Manila	5.40	@	—
Fiber	5.40	@	—
Kraft, M. F.	5.90	@	—
Kraft, No. 2	5.40	@	—

(F. o. b. Cars Toronto)

News, per ton—			
Rolls (contract)	39.50	@	—
Sheets	44.50	@	—

Pulp

Ground wood	27.00	@	—
Unbleached Sulphite	42.00	@	—
Book (Class 1)	58.00	@	—
Writing (Class 2)	59.00	@	—
Select (Class 3)	60.00	@	—

Old Waste Paper

(In carload lots, f. o. b. Toronto)

Shavings—			
White Env. Cut	2.00	@	2.25
Soft White	1.60	@	1.90
White Blk. News	1.25	@	1.40
Book and Ledger—			
Flat Magazine and Book Stock (old)	.90	@	1.00
Light and Crumpled Book Stock	.80	@	.90
Ledgers and Writings	1.00	@	1.05
Manilas—			
New Manila Cut	1.25	@	1.40
Printed Manilas	.50	@	.60
Kraft	1.00	@	1.60
News and Scrap—			
Strictly Overissue	.55	@	—
Strictly Folded	.50	@	—
No. 1 Mixed Paper	.40	@	—

Domestic Rags

(Price to mills, f. o. b. Toronto)

No. 1 White Shirt Cuttings	.06¼	@	.06½
Fancy Shirt Cuttings	.02¼	@	.02½

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TABLE OF CONTENTS

Paper Men Discuss Washington Conference	13
Institute Plans Additions	14
Fox River Valley Mills Active	14
Miniature Paper Machines Exhibited	14
Canadian Industry More Optimistic	16
Repeat Orders for Hydraulic Beating Systems	16
Waste Disposal in Wisconsin	16
Boston Paper Demand Fair	18
U. S.-Canadian Pact Received Favorably	21
Garden City Replaces Burned Mill	21
Paper Company Starts Second Machine	21
Philadelphia Paper Demand Maintained	22
New England TAPPI Discusses Pulp Tests	23
Boston Paper Trade Association Convenes	24
Government Paper Bids	25
Plan More Power for Holyoke Mills	25
Obituary	26
U. S. Casein Widely Used	26
Tayloe Co. Buys Martins-Currie Stock	26
Superintendents Meet at Kalamazoo	27
SKF SA Type Pillow Block	27
Union Bag & Paper Report	27
Standard for Fiber Insulating Board	27
Construction News	28
I. P. Demolishes Mills Near Brownville	30
Editorial	32
Production Ratio Report	33
Hinsdale Paper Mfg. Co. to Rebuild	33
Rushmore Mills Speed Up Operations	33
Technical Section	
The Nature of Cellulose	35
Pulp and Paper Industry Literature Review	41
Waste Liquors and Gases of Paper Industry	43
Must Comply with Guffey Act	49
October Newsprint Statistics	49
Low Cost Centrifugal Pumping Unit	49
Bedford Pulp Co. Insures Employees	49
Imports of Paper and Paper Stock	50
New York Market Review	54
Miscellaneous Markets	56
Market Quotations	56

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Want and For Sale Advertisements, 60-61

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